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How can an existential-phenomenological Bildung perspective throw light on the potentials and workings of Problem-Based Learning?

The case of Danish psychology students and their embodiment of the habits of the profession through processes of formation

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PBL2018 INTERNATIONAL CONFERENCE
PBL for the Next Generation
Blending active learning, technology, and social justice

February 16-19, 2018, Santa Clara, California, USA

CONFERENCE PROGRAM

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Welcome from the Conference Chairs

Welcome to Santa Clara University and to Silicon Valley!



Prof. Dr. Pedro Hernández-Ramos
Co-Chair & Host
Santa Clara University, USA



Reinhold Steinbeck
Co-Chair
IntoActions, USA

It is our pleasure to serve as co-chairs of the local organizing committee for the 2018 PBL International Conference, with the theme “PBL for the Next Generation: Blending active learning, technology, and social justice.”

When Ulisses Araújo, President of the PAN-PBL Association, approached us in Spring of 2017 to explore the opportunity for hosting the 2018 PBL International Conference in Silicon Valley, we immediately started to think about what an appropriate theme for this conference might be. Given the location, the critical role of technology in the development and growth of this part of the San Francisco Bay area and Santa Clara University’s long-standing commitment to social justice became more salient, and the theme quickly emerged. As we reflected on the current state of education, learning, and pedagogy around the world and specifically the “PBL Universe,” it became increasingly clear to us that the most memorable learning experiences for us as teachers/designers and for our students are those where there are authentic, important connections to the real world—to the immediate experiences in the environments where our students as learners can feel a sense of agency, value, and consequences for their work.

In the United States and across the world, there is a growing interest among educators and organizations, such as the International Society for Technology in Education (ISTE), to move away from “traditional” forms of teaching (e.g., lecture), learning (e.g., emphasis on memorization), and assessment (e.g., standardized tests) towards more active and engaging pedagogies (e.g., project-based learning), forms of student learning (e.g., closely linked to the ‘real world’), and ways of assessing student achievement (e.g., performances). For example, the ISTE Standards for Students (<https://www.iste.org/standards/for-students>) envision students as “knowledge constructors,” “innovative designers,” “creative communicators,” and “global collaborators”—qualities, skills, and abilities that have proven difficult if not impossible to develop in traditional learning settings. Furthermore, through the appropriate integration of technologies into our designs for learning experiences we can support our students as they work to become “empowered learners” and “digital citizens,” which are widely recognized now as essential characteristics for academic and personal success in the 21st century.

Returning to the U.S. for the first time since its launch at Samford University in Alabama 18 years ago, the 2018 PBL International Conference expands PBL to include other active learning methodologies and also emphasizes ‘active learning approaches’ for the conference itself. With guidance from the PAN-PBL Association, we have deliberately planned for multiple opportunities to engage with your peers and with the presenters in different ways. There are quite a few Paper Sessions still, yet we hope that through interactions such as the PBL Studio, Lounge, Roundtable, Authentic PBL Problem Trigger, and Workshops this conference will be a rewarding learning and networking opportunity for all of you.

Welcome from the PAN-PBL President

Dear PBL2018 Participants,

Welcome to the PBL2018 International Conference, a premier international academic gathering that brings together scholars, practitioners, students and researchers to share their knowledge and practices on Problem-Based Learning and many other active learning methodologies, such as Project-Based Learning, Team-Based Learning, Design Thinking, and the Maker movement.

The PBL Conference has its origins in the year 2000, when Samford University in Birmingham (Alabama, USA) organized the first conference, aiming to explore the use of PBL in undergraduate learning. Since then, eight other editions have taken place in different universities and countries every two years: University of Delaware, USA (2002), Instituto Tecnológico de Monterrey, México (2004), Pontificia Universidad Católica del Perú (2006), Universidad de Colima, Mexico (2008), Universidade de São Paulo, Brazil (2010), Universidad Autónoma de Occidente, Colombia (2012), Universidad del Bio-Bio, Chile (2014), and Universidade de São Paulo, Brazil (2016).

In 2017, the international academic group involved in these conferences, with the support of over 130 colleagues from 23 countries, created the *PAN-PBL Association of Problem-Based Learning and Active Learning Methodologies*. PAN-PBL is a global non-profit professional association aiming to promote educational forums for professionals representing a wide variety of perspectives and experiences with Problem-Based Learning and Active Learning Methodologies and to foster communication, cooperation, and scientific research for individuals and institutions.

We are thankful to Santa Clara University for hosting the 10th conference of this series, and the first under the auspices of the newly created PAN-PBL Association. Located in the heart of Silicon Valley, Santa Clara University is the oldest in California and is committed to promoting a more just and sustainable world, pursuing new technologies, encouraging creativity, engaging with the surrounding communities, and sharing an entrepreneurial mindset. These goals were the source for the theme of the PBL2018 Conference: Blending active learning, technology, and social justice.

For the PAN-PBL Association, this partnership and the chosen theme fit very well with the goals of the association to enhance and reinvigorate higher, professional, and basic (K-12) education by generating innovative and interdisciplinary knowledge. I hope you will agree that the final program for the conference reflects these goals.

Finally, after a special thanks to Reinhold Steinbeck and Pedro Hernández-Ramos, co-chairs of the Conference, for the hard work and friendship, and to Cristina Pataro for the program preparation, I wish to acknowledge all the partners, friends, colleagues, students, sponsors and supporters listed in the program. So many people made this conference possible that I cannot list them all. But to each and every one of them for their specific roles, I give them my grateful thanks.

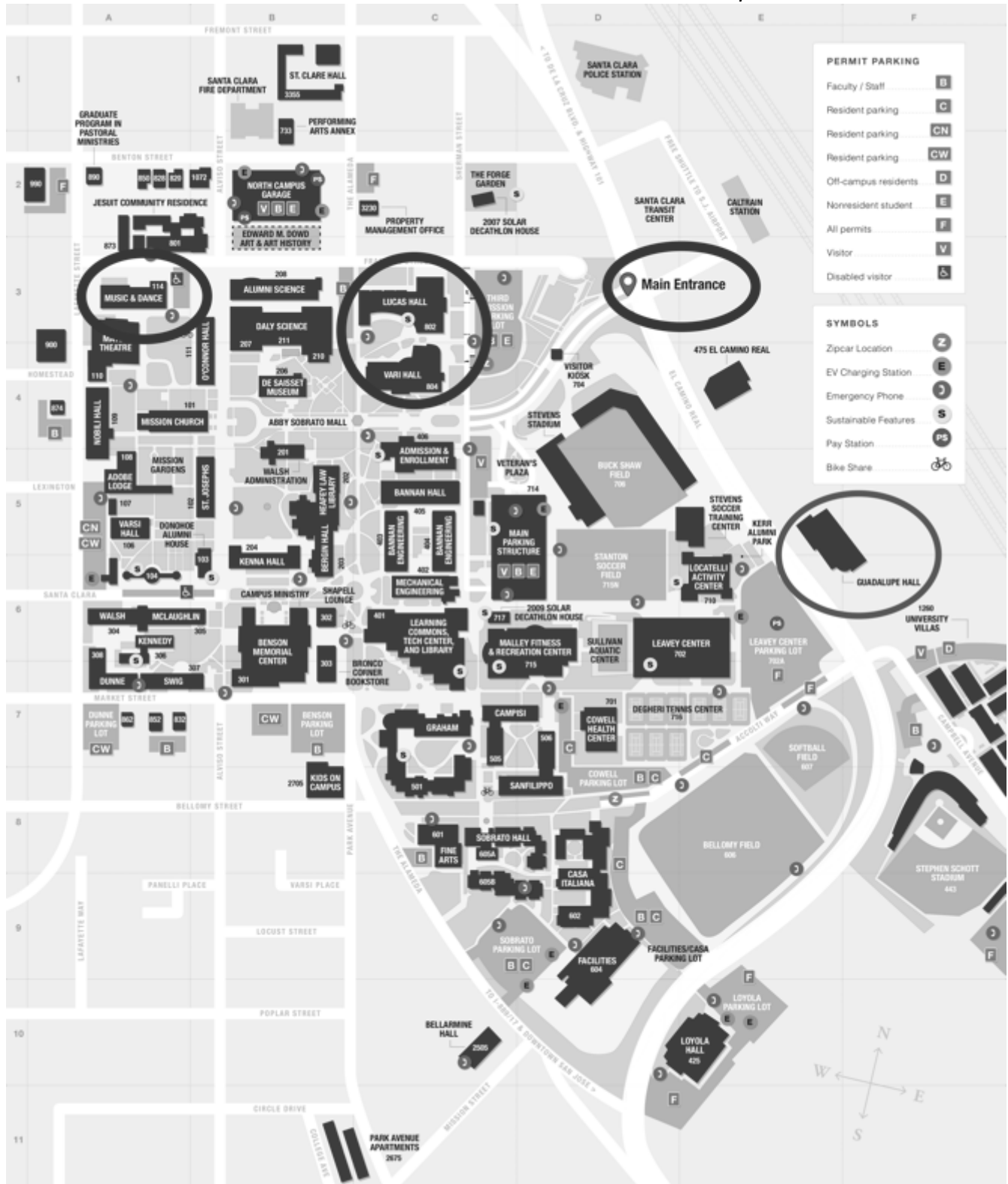
Prof. Dr. Ulisses F. Araújo
PAN-PBL Association President
University of São Paulo, Brazil

Area Map of Santa Clara University

KEYNOTES: Music & Dance Building, Recital Hall

SESSIONS: Lucas Hall and Vari Hall

PRE-CONFERENCE WORKSHOPS AT S.C.U.: Guadalupe Hall



Organizing Committees

Conference Chairs	<i>Pedro Hernández-Ramos</i> (co-Chair & Host) Santa Clara University, USA	
	<i>Reinhold Steinbeck</i> (co-Chair) IntoActions, USA	
International Advisory Committee (PAN-PBL Executive Board)	<i>Ulisses Araújo</i> – University of São Paulo, Brazil – President	
	<i>Luis Bretel</i> – Educational Consultant, Peru – Fiscal Council	
	<i>Diana Dolmans</i> – Maastricht University, Netherlands – Board Member	
	<i>Renate Fruchter</i> – Stanford University, USA – Board Member	
	<i>Woei Hung</i> – University of North Dakota, USA – Treasurer	
	<i>Anette Kolmos</i> – Aalborg University, Denmark – Board Member	
	<i>Paulo Marcondes</i> – Federal University of Santa Catarina, Brazil – Fiscal Council	
	<i>Glen O’Grady</i> – Australian National University, Australia – Board Member	
	<i>Mark Serva</i> – University of Delaware, USA – Secretary	
	<i>Reinhold Steinbeck</i> – IntoActions, USA – Fiscal Council	
	<i>Samson Tan</i> – Nanyang Technological University, Singapore – Board Member	
Scientific Committee	<i>Anette Kolmos</i>	<i>N. de Jong</i>
	<i>Carlos Vega Barone</i>	<i>Nicolaj Riise Clausen</i>
	<i>Cristina Satiê de Oliveira Pátaro</i>	<i>Paulo Marcondes</i>
	<i>Daniëlle Versteegen</i>	<i>Paulo Rogério Miranda Correa</i>
	<i>Diana Dolmans</i>	<i>Pedro Hernández-Ramos</i>
	<i>Haller Schunemann</i>	<i>Reinhold Steinbeck</i>
	<i>Iane Franceschet</i>	<i>Renate Fruchter</i>
	<i>Juliana Franz</i>	<i>Ricardo Fernandes Pátaro</i>
	<i>Juliana Pedreschi Rodrigues</i>	<i>Sanne Rovers</i>
	<i>Glen O’Grady</i>	<i>Samson Tan</i>
	<i>Lucas Nobilo</i>	<i>Ulisses Araújo</i>
	<i>Luis Bretel</i>	<i>Valeria Lacerda</i>
	<i>Lykke Brogaard Bertel</i>	<i>Valeria Amorim Arantes</i>
	<i>Mark Serva</i>	<i>Woei Hung</i>
Conference Secretariat	<i>Cristina Satiê de Oliveira Pátaro</i>	
	<i>Daniela Haertel</i>	
	<i>Douglas Pereira</i>	
	<i>Ricardo Fernandes Pátaro</i>	
Promotion and Organization	PAN-PBL Association of Problem Based Learning and Active Learning Methodologies	
	Santa Clara University	

2018 Conference Schedule at a Glance

FRIDAY 2/16	SATURDAY 2/17	SUNDAY 2/18	MONDAY 2/19
9:00 AM – 4:00 PM	8:30 – 10:00 AM	8:30 – 10:00 AM	8:30 – 10:00 AM
Pre-Conference Workshops	Keynote Speaker 2	Keynote Speaker 3	Keynote Speaker 4
	10:00 - 10:20 AM BREAK	10:00 - 10:20 AM BREAK	10:00 - 10:20 AM BREAK
	10:30 AM - 12:30 PM	10:30 AM – 12:30 PM	10:30 AM – 12:30 PM
	Paper Session 1 Workshops Authentic PBL Problem Trigger Lounge PBL Studio	Paper Session 4 Workshops Authentic PBL Problem Trigger Lounge PBL Studio	Paper Session 7 Workshops Authentic PBL Problem Trigger Lounge PBL Studio
	12:30 – 1:30 PM LUNCH	12:30 – 1:30 PM LUNCH	12:30 – 1:30 PM CLOSING CEREMONY
	1:30 - 3:30 PM	1:30 - 3:30 PM	
	Paper Session 2 Workshops Authentic PBL Problem Trigger Lounge PBL Studio	Paper Session 5 Workshops Authentic PBL Problem Trigger Lounge PBL Studio	
	3:30 – 3:50 PM BREAK	3:30 – 3:50 PM BREAK	
	4:00 – 6:00 PM	4:00 – 6:00 PM	
	Paper Session 3 Workshops Authentic PBL Problem Trigger Lounge PBL Studio	Paper Session 6 Workshops Authentic PBL Problem Trigger Lounge PBL Studio	
6:30 – 9:30 PM	6:00 – 7:00 PM	6:00 – 8:00 PM	
Opening Ceremony	PAN-PBL Association General Assembly	Poster Session	
Keynote Speaker 1		Potluck Cultural Gathering	

Format of Sessions

LG - LOUNGE

In the Lounge sessions, participants are able to meet more informally with experts, keynote speakers, and other invited guests. The space for these sessions will be smaller and more intimate, and we envision not having more than two speakers and one moderator. The speakers are encouraged to engage in conversations with the participants.

ST - PBL STUDIO

PBL Studio sessions are hands-on and provide participants with an opportunity to 'make something' that they can take back home. Guided by experts, participants might design a module for an online PBL course, a robot, a science lab tool, or a learning activity that is based on active learning methods. PBL Studio sessions may last for one or two 2-hour sessions spread across one or two days.

RT - ROUNDTABLE

The Round Table sessions focus on specific topics concerning PBL or other active learning methods. Each session lasts up to 120 minutes. A Round Table is a gathering of 6 to 12 participants interested in a specific topic. Moderated by an expert, participants discuss and deepen their knowledge about specific issues.

PD - PANEL DISCUSSION

Panel Discussions are 120-minute sessions comprised of presentations by 3-5 individuals who address a common theme or topic in PBL or other Active Learning Methods.

WS - WORKSHOPS

Workshops are 120-minute small-group interactive sessions that focus on a specific PBL or Active Learning Method intervention or assessment emphasizing the demonstration and application of techniques, skills, etc.

PT - AUTHENTIC PBL PROBLEM TRIGGER

Authentic PBL problem triggers are 120-minute sessions where proponents will facilitate a group of conference participants to work through a problem. The proponent provides resources to support the group inquiry. One of these resources ideally should be an original piece of work, to be used as a one of a number of resources to scaffold the group discussion.

PS - RESEARCH AND EXPERIENCES PAPER PRESENTATIONS

Paper presentations are reports about research and/or the implementation and application of PBL or Active Learning Methods. They can be presented individually or by an institution with four complementary papers.

PO - INTERACTIVE POSTER AND PROTOTYPE PRESENTATIONS

Posters are visual and graphic representations and Prototypes are original models of products, processes, and public policies that can be tested prior to confirm its functionality. Posters should refer to research and/or the implementation and application of PBL or Active Learning Methods.

Invited Speakers

Keynote Speakers



Henk Schmidt
Erasmus University
Rotterdam, Netherlands

Henk Schmidt is a professor of Psychology at Erasmus University's Faculty of Social Sciences and founding dean of its problem-based psychology curriculum. From September 2009 until November 2013, he was the Rector Magnificus of Erasmus University Rotterdam, the Netherlands. Previously, Schmidt held academic positions as professor of cognitive psychology, faculty of psychology, Maastricht University, and as professor of health professions education at the same university. His administrative positions include both the deanships of the faculty of social sciences at Erasmus University and the faculty of health sciences of Maastricht University. In addition, he has been the president of the Dutch Psychological Association (NIP), the chairman of the Dutch Society for Research into Higher Education (CRWO), and the associate secretary general of the Network of community-oriented educational institutions for health sciences, a World Health Organization-supported NGO. He was R. Samuel McLaughlin Professor at McMaster University, Hamilton, Canada, and Prof. L. Verhaegen Professor at the Limburg University Centre, Diepenbeek, Belgium. Furthermore, he has been a visiting professor at McGill University, Montreal, Canada; the University of Bern, Switzerland; and the University of Cape Town, South Africa.



Amy Smith
Founding Director, D-Lab,
2004 MacArthur Fellow
MIT, USA

Amy Smith is a senior lecturer in Mechanical Engineering at MIT. She served in the US Peace Corps in Botswana and has also done field work in Senegal, South Africa, Nepal, Haiti, Honduras, Uganda, Ghana and Zambia. She won the BF Goodrich Collegiate Inventor's Award and the Lemelson-MIT Student Prize for Invention for her work in creating technologies to improve the lives of people living in poverty. In 2002, she founded MIT D-Lab, a program which focuses on the development, design, and dissemination of appropriate technologies for international development. She also founded the International Development Innovation Network at MIT, the Innovations in International Health program, and the International Development Design Summit. She was selected as a 2004 MacArthur Fellow, recognizing her work in this area and was named one of Time Magazine's 100 most influential people in 2010 for the work she is doing to promote local innovation and technology creation. Her current projects are in the areas of water testing, treatment and storage, agricultural processing and alternative energy. She serves as co-director of D-Lab and is director of the International Development Innovation Network.



Karen Cator
CEO of Digital Promise

Karen Cator is President and CEO of Digital Promise and a leading voice for transforming American education through technology, innovation and research. From 2009-2013, Karen was Director of the Office of Educational Technology at the U.S. Department of Education, where she led the development of the 2010 National Education Technology Plan and focused the Office's efforts on teacher and leader support. Prior to joining the department, Cator directed Apple's leadership and advocacy efforts in education. In this role, she focused on the intersection of education policy and research, emerging technologies, and the reality faced by teachers, students and administrators. She began her education career in Alaska as a teacher, ultimately leading technology planning and implementation. She also served as Special Assistant for Telecommunications for the Governor of Alaska. Cator holds a master's in school administration from the University of Oregon and received the 2014 College of Education Distinguished Alumni award. The American Association of Publishers has awarded Cator with the 2014 Visionary Award. She received her bachelor's in early childhood education from Springfield College and received the 2015 Distinguished Alumna award. She is an Aspen Pahlara Fellow, the past chair for the Partnership for 21st Century Skills and has served on boards including the Software & Information Industry Association-Education.



Jennifer Merritt
Director of Community-
Based Learning for the
Ignatian Center for Jesuit
Education - Santa Clara
University, USA

Jennifer Merritt, M.B.A., Ph.D., serves as the Director of Community-based Learning in the Ignatian Center. She is primarily responsible for overseeing the execution of the Arrupe Weekly Engagement Program as well as Thriving Neighbors Initiative, Santa Clara University Community Partnerships. She earned her B.A. from Vanderbilt University, her M.B.A. from Northwestern University's J. L. Kellogg Graduate School of Management, and her Ph.D. in Social Foundations of Education from the University of Virginia. Dr. Merritt has worked in industry management with Johnson & Johnson and served on the faculty at John Carroll University in the Department of Education and Allied Studies, where she founded the campus-based middle school and high school positive youth development program known as the Carroll-Cleveland Philosophers' Program. Most recently, she served as the Faculty Director of Mentoring and Diversity at the University of Virginia Women's Center, where she taught "Women Peace and Justice," "Teaching Philosophy in High Schools," and "Facilitating Mentoring Relationships" while directing international education and research initiatives with the Women's Center's global partners in India and Africa and developing outreach programming for adolescent girls and women locally and globally.

Featured Speakers



Lee Shulman
Stanford University
Emeritus, USA



Diana Dolmans
Maastricht University
Netherlands



Larry Leifer
Stanford University, USA



Glen O'Grady
Australian National
University, Australia



Rachel Lotan
Stanford University
Emerita, USA



John Mergendoller
Buck Institute for
Education, USA



Michael M. Grant
University of South
Carolina, USA



Renate Fruchter
Stanford University, USA



Paulo Blikstein
Stanford University, USA



Mark Serva
University of Delaware,
USA



Shelley Goldman
Stanford University, USA



Thomas Ryberg
Aalborg University,
Denmark



Ulisses Araújo
University of São Paulo,
Brazil



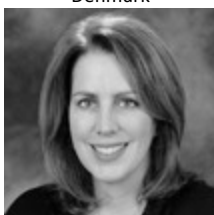
Brian Fox
San Francisco Unified
School District, USA



Luis Bretel
Educational Consultant,
Peru



Woei Hung
University of North
Dakota, USA



Sally Kingston
Buck Institute for
Education, USA



Dan Gilbert
Gilbert + Chittenden



Brandon L. Wiley
Buck Institute for
Education, USA



Silvia Figueira
Santa Clara University,
USA



Carlos Teixeira
Illinois Institute of
Technology, USA



Pedro Hernández-Ramos
Santa Clara University,
USA



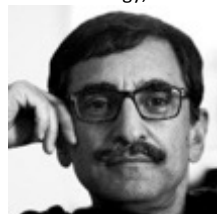
Bob Lenz
Buck Institute for
Education, USA



Reinhold Steinbeck
IntoActions, USA



Samson Tan
Nanyang Technological
University, Singapore



Jim Vanides
Montana State University
& EdFutures.org, USA



Michelle Stecker
Santa Clara University,
USA



Connie Davidson
California State University,
USA



Michael Slade
California State University,
USA



Anthony Leow
Republic Polytechnic,
Singapore

Schedule and Location of Sessions

FRIDAY 2/16

PRE-CONFERENCE WORKSHOPS

Workshop 1 9:00 – 14:00	Meaningful Making: A Hands-on Introduction to FabLearn Labs and Makerspaces	Location: Stanford TLTL Stanford University Campus
<p>Partner Institution: FabLearn and the Transformative Learning Technologies Lab (TLTL) at Stanford University's Graduate School of Education</p> <p>Facilitator: <i>Dr. Paulo Blikstein</i> (Director Transformative Learning Technologies Lab)</p> <p>This workshop offers participants an introduction to FabLearn, an educational makerspace lab, a research collaborative, a global network, and a vision of learning for the 21st century. The workshop includes hands-on activities that allow participants to experience and reflect on how modern technology allows schools, libraries, community organizations, and other learning spaces to offer experiences to learners that are both intellectually rich and expressive. Participants will also have the opportunity to tour the Hasso Plattner Institute of Design, also known as the Stanford d.school, a place and a community where people use design to develop their own creative potential.</p>		

Workshop 2 9:00 – 16:00	A PBL Project Slice – An Immersive PBL Experience for K-12 Professionals	Location: Guadalupe Hall 260 Santa Clara University Campus
<p>Partner Institution: The Buck Institute for Education (BIE)</p> <p>Facilitator: <i>Jeanine Leys</i> (National Faculty, Buck Institute for Education – BIE)</p> <p>A Project Slice demonstrates what it's like to be a learner in Project Based Learning, by engaging participants in an immersive PBL experience—a “slice” of a project. Schools and districts can use a Project Slice to build understanding of PBL in a staff or school community. Project Slice participants engage as learners in a transformative one-day project that models the key features of the PBL process. The day mirrors the flow of a larger project, beginning with an engaging launch/entry event and authentic driving question. Teams work together to build knowledge, understanding and success skills, and develop and critique products and answers to the driving question. The day culminates with team presentations of their products, followed by structured reflection on what they have learned about PBL. At key moments throughout the day, participants are encouraged to “put on their teacher hats” and reflect on the pedagogical moves they are experiencing as PBL learners, as well as implications for their own contexts. Making Space for Change: Participants in this Project Slice explore the driving question, “How can we redesign a public space to promote a social benefit?” Each team focuses on creating a plan for a public space (park, library, etc.) that facilitates a different goal, such as increasing opportunities for civil and democratic discourse, or enhancing public health and physical fitness.</p>		

Workshop 3 13:00 – 17:30	A Deep Dive into PBL at Stanford University: Inspiration, Principles and Ideas for PBL at Your Campus	Location: Stanford Engineering Stanford University Campus
<p>Partner Institution: PBL Lab in the Department of Civil and Environmental Engineering, Stanford University, CA, USA</p> <p>Facilitator: <i>Dr. Renate Fruchter</i> (Director PBL Lab, Stanford Center for Integrated Facility Engineering), <i>Dan Gilbert</i> (Founder, Gilbert + Chittenden)</p> <p>PBL courses have grown consistently over 20+ years at Stanford University and are now a significant component in multiple academic programs across schools. This workshop aims to expose and inspire participants by diverse PBL examples from the Stanford Graduate School of Education, the Stanford School of Engineering, and the Hasso Plattner Institute of Design (known as the Stanford d.school). We will discuss key principles of PBL formalized and implemented in the different programs and invite participants to develop ideas that connect those principles with specific needs and goals for courses and students at participant's home institutions. Finally, participants will have hands-on experiences with some of the latest collaboration technologies and learning spaces that are being used to support innovative approaches to PBL. Launching the 25th generation of a cutting-edge global teamwork class at Stanford: https://news.stanford.edu/2017/10/25/launching-25th-generation-cutting-edge-global-teamwork-class-stanford/</p> <p>Participants will:</p> <ul style="list-style-type: none"> – Hear stories of PBL in action from a variety of disciplines at Stanford – Make connections between key PBL principles and specific examples of activities in different courses – Generate ideas towards implementing PBL principles at their institutions and/or courses and receive valuable feedback from a community of like-minded leaders - Build relationships with PBL visionaries from other institutions 		

Workshop 4 9:00 – 13:00	Team-Based Learning: Taking PBL to the Next Level	Location: Guadalupe Hall 203/204 Santa Clara University Campus
<p>Facilitator: <i>Mark A. Serva</i> (Associate Professor of MIS & MIS Advisor, University of Delaware, USA)</p> <p>Team-based learning is an inquiry-based pedagogy that has many similarities to PBL. Knowledge of TBL, however, can actually enhance PBL. TBL provides guidance on class structure, encouraging students to come to class prepared, and an alternative to problem design. This workshop will be very practical and very hands-on: attendees will learn how to structure a class, ensure their students are prepared for class, and design a TBL application exercise.</p>		

OPENING CEREMONY

KN 1 6:30 – 9:30 PM	<p>Keynote Speaker <i>Jennifer Merritt</i> Director of Community-Based Learning for the Ignatian Center for Jesuit Education Santa Clara University, USA</p>	Location: Recital Hall Music & Dance Bldg. Santa Clara University
<p>Santa Clara University's Thriving Neighbors Initiative: Using A Problem-Based Learning Approach to Advance Social Justice in Our Communities and Beyond, One Relationship at a Time</p> <p>As a systematic teaching method, Problem-Based Learning (PBL) can help students to gain knowledge and skills by exploring authentic questions in real-world contexts and developing products that advance science and technology. With an approach geared toward fostering “transformational” relationships between university and community stakeholders, PBL can also make our world a more just, humane, and sustainable place as we walk with one another in solidarity and accompaniment, respect the human dignity of each individual on the journey, see one another eye to eye, and open ourselves to the unknown possibilities of change in our own lives and in the community at large. Dr. Jennifer Merritt will shed light on the disposition, attitudes and values that Santa Clara University attempts to cultivate in university stakeholders as a Jesuit, Catholic institution doing PBL work with partners in urban San Jose. Together with students, faculty, staff, institutional community partners, local leaders and their children, Dr. Merritt will reveal the methods, pedagogies, and practices that have led to the creation of a cross-cultural and cross-disciplinary PBL network known as The Thriving Neighbors Initiative, expose some of the embedded challenges faced along the way, and offer thoughts on the notion of “community” as both a means and an end in the pursuit of social justice and social change.</p>		

SATURDAY 2/17

KN 2 8:30 – 10:00 AM	Keynote Speaker <i>Henk G. Schmidt</i> Erasmus University, Rotterdam, Netherlands	Location: Recital Hall Music & Dance Bldg. Santa Clara University
Problem-based Learning: State of the Art		
Forty-nine years ago, problem-based learning (PBL) was invented at McMaster University's Faculty of Health Sciences in Canada. Where do we stand almost half a century later? The talk will take an international perspective. The first part will discuss effects of PBL on student learning from studies conducted worldwide. Is PBL still a worthwhile endeavor? The second part will introduce two pedagogical ideas underlying PBL: activation of prior knowledge and situational interest arousal. And part three will deal with practical issues: How to keep a curriculum flexible? How to introduce blended learning? How to keep the academic staff motivated after the novelty of PBL wears off?		
Tribute to Peter Bouhuys		

10:00 – 10:20 AM

BREAK

VARI HALL LOBBY

PANEL DISCUSSION

PD 1.1 10:30 – 12:30	Barriers and Affordances for Active Learning Approaches in Higher Education: Examples from Education in the Professions	Location: LUCAS 126
<p><i>Lee Shulman</i> (Professor of Education Emeritus, Stanford University / President Emeritus, The Carnegie Foundation for the Advancement of Teaching)</p> <p><i>Rachel Lotan</i> (Professor Emerita, Stanford University, USA)</p> <p><i>Renate Fruchter</i> (Director of the PBL Lab, Stanford University, USA)</p> <p>Moderator: <i>Ulisses Araújo</i> (University of São Paulo, Brazil / PAN-PBL President)</p> <p>Teaching and learning in professions such as medicine, law, teaching and engineering are inherently problem-based. Yet much of professional education is didactic and non-interactive. We will examine the circumstances that make problem-based learning difficult in higher education, the conditions under which professional education might change, and even explore the possibility that PBL may not necessarily be the pedagogy of choice in many situations.</p>		

LOUNGE

LG 1.1 10:30 – 12:30	Tips from Research & Practice for effective PBL in K-12 settings	Location: LUCAS 207
<p><i>John Mergendoller</i> (Senior Fellow, former Executive Director, Buck Institute for Education, USA) and <i>Sally Kingston</i> (Senior Director, Research & Evidence, Buck Institute for Education, USA)</p> <p>Join the experts from BIE for a discussion of lessons from research and practice for effective use of PBL in K-12 classrooms and schools.</p>		

AUTHENTIC PBL PROBLEM TRIGGER

PT 1.1 10:30 – 12:30	Creative problem solving in biomedical engineering*	Location: WEIGAND ROOM
<p>Organizer: <i>Julia Scott</i> (Santa Clara University, USA)</p> <p>In biomedical engineering, we solve medical problems with engineering principles. For students, this calls on incremental practice in drawing connections between basic sciences—biology, chemistry, physics—and innovating upon them. They must identify the key problem and realize a solution that is technologically attainable, safe for the patient and environment, affordable to manufacture, and accessible to the target population. Participants will experience the process that students undergo in their project assignments by working through a specific unsolved medical problem. Active learning and creative thinking techniques will be utilized to show how they can support effective development of solutions.</p>		

*** It would be very helpful if participants have a laptop to use to search for information in the workshop**

PT 1.2 10:30 – 12:30	No Silver Bullets: Leading Problem-based Learning School Transformation	Location: LUCAS 309
<p>Organizer: <i>Paul Sutton</i> (Pacific Lutheran University, USA), <i>Annie Kuo</i> (Stanford University, USA), <i>Elizabeth Wright</i> (Penn State University, USA)</p> <p>While recent research has demonstrated the potential positive outcomes of implementing problem- and project-based learning, schools and districts largely limit PBL implementation and experimentation to specific courses or specific units within courses. However, for PBL to fully realize its potential, public school and district leaders should take bolder approaches to PBL implementation in schools. In this problem of practice session, we use lessons learned from our recent study of a public school to challenge participants to creatively and collaboratively solve three of the most persistent problems this school faced over five years of PBL adoption and implementation.</p>		

WORKSHOPS

WS 1.1 10:30 – 12:30	Experience Experiential Learning – Champion the Change	Location: VARI 133 Language: ENGLISH
<p>Organizer: <i>Ashley Ault</i> (The Harbour School, Hong Kong)</p> <p>Innovation occurs when students are presented with the opportunity to observe, participate and solve relevant problems. Educators/ participants will work on teams and experience the process of first observing the world through a variety of perspectives, communicate and identify a global or community issue to address. I will first model a project that I ran with my Middle School students that tackled the housing crisis in Hong Kong. I will provide steps for educators to challenge their students, involve their communities, experts and technology to create student-driven, solution focussed, inquiry based projects.</p>		

WS 1.2 10:30 – 12:30	Problematização da práxis docente no Ensino Superior por meio de vivência lúdica	Location: VARI 134 Language: PORTUGUÊS
<p>Organizers: <i>Fabiana Claudia de Vasconcelos França</i>, <i>Geisa Sant'Ana</i>, <i>Manuela Costa Melo</i> (Escola Superior de Ciências da Saúde, Brasília, DF, Brasil)</p> <p>Introdução: As Instituições de Ensino Superior têm investido em projetos pedagógicos com a inclusão de metodologias ativas. Objetivo: Compreender a essência da problematização como estratégia de ensino e aprendizagem no uso das metodologias ativas. Método: workshop utilizando vídeo, atividade lúdica, exposição dialogada baseado no trinômio: problema – explicação – solução. A atividade será organizada para 90 minutos, com aproximadamente 25 participantes, divididos em pequenos grupos, na sequência de apresentação, desenvolvimento e conclusão. Resultados Esperados: espera-se que a realização desta intervenção possa contribuir com acréscimos para as discussões que permeiam a Problematização na educação superior.</p>		

PAPER SESSION 1

PS 1.1 10:30 – 12:30	Location: LUCAS 208	Language: ENGLISH
<p>Design thinking and instructional design articulation for problem solving in distance education</p> <p><i>Andrea Filatro</i>, <i>Carolina Costa Cavalcanti</i> (Unasp Virtual Campus, São Paulo, SP, Brasil)</p> <p>Design thinking is an innovation approach composed of a process, a mindset, methods and strategies that aim to put people and their needs at the center of the problem-solving process. In parallel, instructional design is the process of identifying a learning problem and designing, developing, implementing and evaluating a solution to it. This article articulates the use of DT and ID in the design a global distance learning course, mapping limits and possibilities of each approach to the creation of innovative solutions to a specific problem, and indicating as a common basis the contributions of human centered design in education.</p>		
<p>Connecting worlds: Making virtual mobility work for the greater good</p> <p><i>Herco Fonteijn</i> (Maastricht University, Maastricht, Netherlands), <i>Aulia Iskandarsyah</i>, <i>Rosie Hinduan</i> (Universitas Padjadjaran, Bandung, Indonesia)</p> <p>Virtual mobility stimulated students to engage in online teamwork and boost global citizenship competences. Every year since 2013 over 100 master students in Bandung, Indonesia and Maastricht, The Netherlands, focus on humanitarian work and jointly produce PBL teaching materials and intervention proposals. Since 2016 over 500 bachelor students in Bandung and Maastricht experience how intercultural peer-to-peer learning can enrich research findings on topics like moral judgment and decision making. Virtual collaborative problem solving, uncertainty management, perspective taking, and leadership and intercultural competencies are strengthened. Evaluation results and possible obstacles to successful implementation of virtual mobility will be discussed.</p>		
<p>A Reflective ePortfolio Project as the Culminating Masters Degree Experience</p> <p><i>Pedro Hernández-Ramos</i> (Santa Clara University, Santa Clara, CA, USA)</p> <p>Since 2014, students completing the Master of Arts in Interdisciplinary Education degree at Santa Clara University could opt to create a reflective electronic portfolio (instead of conducting an action research project) as the culminating experience in the program. A total of 27 students have completed the program this way. This paper summarizes the accompanying instructor's observations regarding the types of students best suited for this option, opportunities and challenges derived from the electronic platform selected (Digication), insights about the students' learning of reflective writing, and on the use of ePortfolios as a summative assessment tool.</p>		

Problem-Based Learning in a MOOC

Daniëlle Verstegen, Herco Fonteijn (Maastricht University, Maastricht, Netherlands)

Problem-Based Learning is an effective, widely used learning format, but in the traditional format it depends heavily on face-to-face meetings and tutor guidance. In online or blended, often post-academic programs, neither of those might be feasible, maybe not even desirable. We have developed a MOOC about Problem-Based Learning (PBL) following the principles of PBL. The PBL MOOC was first successfully executed in 2015, and for the second time in 2017. Design and evaluation results of the PBL MOOC will be discussed.

PS 1.2
10:30 – 12:30

Location:
LUCAS 307

Language:
ENGLISH

Students' experiences of design thinking and distributed scaffolding in middle school

Todd Wass (The Children's School, Atlanta, GA, USA)

This qualitative case study sought to understand how students experienced and responded to design thinking and distributed scaffolding as students navigated a design challenge by creating a public art installation honoring a group that promoted human rights. This research sought to explain how the distributed scaffolding embedded within design thinking further aided students in their learning and work production. This study reported: How students' experienced and responded to distributed scaffolds that were placed into curriculum units to help students reflect; How students demonstrated social studies skill and content knowledge; and how students worked through real-world human-centered problems towards viable solutions.

Active Project-Based Learning In Diverse Community Settings

Cheryl Bowen (Santa Clara University, Santa Clara, CA, USA)

This active project-based learning (PBL) presentation reports on the design of a service-learning key signature assignment that was created for a blended learning course at Santa Clara University. Four project examples in diverse community contexts will highlight the purpose of the service, how it connects local educational enterprises with underserved communities, and how it exemplifies transformational learning for participants and recipients in a) Google's BOLD Teens, b) The Fresh Food Exchange at Huff Elementary School, c) The Building Bridges Between the Cashion Cultural Legacy and the Community Project, and d) Partners in Arms: The CAMP College Program Buddy System Project.

Mission: citizen. A case of elementary school students who exercised citizenship with the city councilmen

Patrick Duarte (University of São Paulo, São Paulo, SP, Brazil)

According to Araújo (2007), citizenship has historically had the meaning of meeting political and social needs. However, in the present context, this understanding does not contemplate the complex character of human relations. To assume children's education based on citizenship is to cherish democracy, justice and the active participation of members of society—this is the basis of the "Mission: Citizen." This project has led students to participate actively in society by engaging with the community so that they can reflect on social problems, culminating in the production of reports to be brought to the attention of the municipal legislative branch.

PBL as a Model for Differentiation in the Language Arts

Matthew Callahan (Hillbrook School, CA, USA)

This paper, co-presented with current middle school students, will discuss how project-based learning serves as a model for genuine differentiation, providing what many educators term a "low floor, high ceiling" experience for students in the language arts classroom. Many forms of traditional differentiation seek simply to engage learners for whom the standard material might pose challenging, while properly integrated PBL provides opportunities to draw in not only students who might otherwise be left out, but also to engage the advanced students of English.

PS 1.3
10:30 – 12:30

Location:
VARI 135

Language:
ESPAÑOL

ABP y construcción de paz en la escuela

Carola Gómez Medina (Universidad de Los Andes, Bogotá, Colombia), *Libia Paola Martínez Rincón*, *Laura Elizabeth Molano Peña* (Fundación para la Reconciliación, Bogotá, Colombia)

Entre los años 2015 y 2017, 11 instituciones educativas de Latinoamérica implementaron un proyecto para la construcción de paz en la escuela. Con un abordaje de tipo socio-crítico y socio-construccionista, el trabajo consistió en transformar relaciones y estructuras dentro de las comunidades educativas, a partir de la identificación y selección de un problema de interés para la comunidad. Una de las preguntas de interés en la investigación fue ¿qué se entiende por "problema" en la comunidad educativa y cómo incide esta comprensión en el logro de transformaciones? Los resultados evidencian comprensiones diversas que dificultan alcanzar transformaciones pertinentes.

De la historia de vida a la teoría: Una experiencia de ABP en la enseñanza de la Psicología

Regina Tagliabue (Universidad Peruana de Ciencias Aplicadas, Lima, Perú)

Este trabajo relata una experiencia realizada en el segundo curso de Psicología del Desarrollo con alumnos de la Carrera de Psicología de la Universidad Peruana de Ciencias Aplicadas UPC. Los alumnos trabajaron en grupos de tres personas y elaboraron una monografía sobre del proceso evolutivo de un adulto mayor, cuya historia de vida sería construida a partir de tres conversaciones-entrevistas a profundidad con su entrevistado. Con una guía construida en clase realizaron las entrevistas y durante el semestre fueron contrastando los desarrollos teóricos de cada etapa evolutiva con los contenidos de la historia de vida del adulto mayor.

ABP en Laboratorios de Química general

María Felipa Cañas Cano (Universidad de Piura, Perú)

La enseñanza de Química, tradicionalmente, asocia la base teórica y la práctica en el laboratorio. Este último, debería conseguir aprendizajes significativos, sin embargo, hace algún tiempo se viene planteando que si la metodología generalizada es básicamente facilitar guías, eso lo convierte en seguir “la receta”. Química General se trabaja en base a ABP. Dada esa realidad, una forma de ser más congruentes, ha sido plantear y llevar a cabo que cada grupo de estudiantes, según su avance, proponga su propio experimento que responda alguna de las interrogantes del problema ABP que resuelven durante todo el semestre.

12:30 – 1:30 PM

LUNCH

ON YOUR OWN

LOUNGE

LG 2.1 1:30 – 3:30	The Wisdom of Practice	Location: LUCAS 126
<i>Lee Shulman</i> (Professor of Education Emeritus, Stanford University / President Emeritus, The Carnegie Foundation for the Advancement of Teaching) Moderator: <i>Glen O’Grady</i> (Australian National University, Canberra, Australia) Come, visit and chat with Lee Shulman about teaching, learning, and learning to teach.		

PANEL DISCUSSION

PD 2.1 1:30 – 3:30	Achieving PBL Excellence: Transformative Teachers and Focused Schools	Location: LUCAS 207
<i>John R. Mergendoller, Brandon L. Wiley, Bob Lenz, & Sally Kingston</i> (Buck Institute for Education, USA) Over the last 30 years, the Buck Institute for Education has prepared several hundred thousand teachers to use Project-based Learning effectively with their students. In addition, it has worked in partnerships with both large (Los Angeles Unified, Nashville Public Schools, etc.) and small American school districts to implement Project-based learning across schools, subjects, and grade levels. This symposium presents the lessons BIE has learned from this work, and our understanding of what is necessary to use Project-based learning effectively as a tool to improve students' learning and their lives.		

AUTHENTIC PBL PROBLEM TRIGGER

PT 2.1 1:30 – 3:30	Scaffolding a Community-based, Interdisciplinary Project Experience	Location: LUCAS 309
Organizer: <i>Richard Vaz, Paula Quinn</i> (Worcester Polytechnic Institute, USA) This session will illustrate an approach to guiding students through a community-based, interdisciplinary research project experience. Participants will be given an actual problem statement from a community partner, and will work in teams to develop goal statements, identify areas for research, consider stakeholder perspectives, and anticipate results. The experience will then be analyzed to consider the curricular design elements and assignments needed to keep students on track, provide formative feedback, and assess student performance on an authentic, open-ended project. Examples of project schedules and grading rubrics will be shared.		

WORKSHOP

WS 2.1 1:30 – 3:30	How to Design PBL problems That Enhance Deep Learning?	Location: WEIGAND ROOM Language: ENGLISH
Organizers: <i>Diana Dolmans, Daniëlle Verstegen, Sanne Rovers</i> (Maastricht University, Maastricht, Netherlands) High quality problems are the key success factor of problem-based curricula. But, what are criteria for effective problems? What are major pitfalls? The workshop will start with an introduction about the basic ideas behind deep learning and current instructional design principles. Thereafter, participants will design problems in small groups for their own contexts. The problems will be discussed and feedback will be given on how to further improve the problems. Participants will gain insight in how to design problems fitted to the students’ level as well as how to increase problem complexity and align problems and other curriculum elements.		

WS 2.2 1:30 – 3:30	Bears in a Boat: Modeling Science-Content and Language Development through PBL for Preservice Elementary Teachers	Location: VARI 133 Language: ENGLISH
Organizers: <i>Peter Rillero, Malissa Chavez Thibault, Margarita Jimenez Silver</i> (Arizona State University, Anthem, AZ, USA) Bears in a Boat is a Problem-Based Enhanced-Language (PBELL) experience deepening conceptual understanding of floating and sinking. We taught this lesson with preservice elementary education students, second graders on the US-Mexico border, and in an urban setting in Phoenix with a large population of third-grade ELLs. The science content outcomes are for students to be able to describe the difference between floating and sinking, to create a boat that can float, and to explain that the more weight in a boat the deeper it floats. Content scaffolds include methods for ELLs and opportunities for language use and development.		

PAPER SESSION 2

PS 2.1 1:30 – 3:30	Location: LUCAS 208	Language: ENGLISH
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Innovative pedagogical architectures in a professional masters in Business Administration in Brazil

João Paulo Bittencourt (Somos Educação, São Paulo, SP, Brazil)

This work aimed to analyze the use of Innovative Pedagogical Architectures in professional master courses in Business Administration (PMBA) in Brazil, its current state, characteristics, strengths and challenges. The Pedagogical Architecture (PA) consists in four aspects: a) organizational, b) content, c) methodological, and d) technological (Behar, 2009; 2011). They are innovative when they provide and instigate active, collaborative and meaningful learning. The theoretical framework was tested in four cases in PMBAs, through 34 interviews and 40 documents related to the cases. The results enable teachers and students to find their own way to promote active, meaningful, and collaborative learning.

Rethinking leisure and tourism professional development: a creative learning based on problems

Ricardo Ricci Uvinha (University of Sao Paulo, São Paulo, SP, Brazil)

This paper aims at examining the prominence of the appliance of Problem-based Learning method in the leisure studies field, emphasizing the experiments developed by the Leisure and Tourism Bachelorship, University of Sao Paulo Brazil. The results implies that such studies have been consolidated as a real possibility for interventions in the East region community of Sao Paulo-Brazil, in programs focused on the leisure field development, especially for poor inhabitants, mobilizing the group for a significant strengthening of the relationship between the thematic work market, and also stimulating it for a reflection on citizenship and connectivity with the local community.

Using Fuzzy Analytic Hierarchy Process to Assign Weights to Project Based Learning Outcomes in the Perspective of the Industry Professionals

Abdullah Mughrabi, Sayed Soleimani (Australian College of Kuwait, Kuwait), *Nawar Mughrabi* (Liverpool University, England, U.K.)

Course learning outcomes should be the centre of attention when it comes to achieving the intended learning of a subject utilizing a Project-Based Learning (PBL) approach. The learning outcomes of the PBL courses are oriented towards achieving an array of goals including the enhancement of industry relevance and preparing the student for real-life scenarios. Since increasing industry relevance is one of the biggest drivers of PBL courses, this study aims to improve grading quality through assigning weights to learning outcomes by the industry professionals to reflect each learning outcome's importance in the practical setting of the industry.

Community Consulting Projects: Team-Based Service as an Undergraduate Learning Laboratory for Effective Business Communications

Deirdre Frontczak (Santa Clara University, Santa Clara, CA, USA)

Undergraduate business education often focuses on building core skills in major areas such as accounting, marketing, information systems and finance. Yet increasingly, employers expect strength in "soft" skills that allow for effective collaboration and project implementation in the real business environment. At Santa Clara University, undergraduate business students develop communication skills through designing and implementing a team-based Community Consulting Project (CCP), working with a non-profit or socially responsible business with whom students partner throughout the course. This project fosters not only communication and problem-solving skills, but also interpersonal and collaborative abilities students will need upon entry to the business world.

PS 2.2 1:30 – 3:30	Location: LUCAS 307	Language: ENGLISH
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PBL as a catalyzer for the development of 21st century workplace skills: A students' perspective

Alexander Schlag (Iberia Airlines, Madrid, Spain)

A 2016 initiative of a Spanish airline to train maintenance personnel has resulted in a three-year VET program with 40% on-site workplace learning. PBL was chosen as a method of holistic learning and to promote the development of 21st century workplace competencies, mainly team work, communication, problem analysis, and life-long learning capabilities. For its inaugural run, workplace trainers and students were exposed to narrative inquiry as the qualitative research method of choice. First results are presented to illustrate the students' perspective.

Structuring PBL around students' own projects

Lars Birch Andreassen (Aalborg University, Aalborg, Denmark)

The PBL approach at Aalborg University, Denmark, combines individual courses with students' own projects. How may the digital tools and resources, which are increasingly used by students as well as teachers, influence the organization of courses, projects, and the overall semester structure? In the research project "Future directions for PBL in a digital age" (2017-2020), a "flipped semester" approach will be investigated, taking student-chosen problems as the starting point for integrating knowledge resources, courses, and project work to improve students' learning.

Flipped PBL curriculum—creating the next generation of PBL learning principles

Ulla Konnerup (Aalborg University, Aalborg, Denmark)

AAU is internationally recognized for its reliance on problem- and project-based learning (PBL). As part of the university's quality assurance of education, the PBL principles are reviewed on an ongoing basis. To continue developing PBL to the competencies of the future, AAU has invested 4.2 million Euros divided among 23 projects. A first step is to integrate IT directly into the PBL model. Based on one of the project's teaching cases, an ongoing 6-week course, this paper will demonstrate and reflect how flipped curriculum and online learning activities can integrate ICT in the PBL principles in higher education.

Boosting students' empathy

Tarsila Cimino Carvalho, Ana Gabriela de Lima Pereira, Diego Leonardo Silva (Maple Bear Bilingual School, São Paulo, SP, Brasil)

As an initial step, students were exposed to some blind people real lives to understand a little bit more about their needs, difficulties especially the one related to transports and mobility. Their parents were encouraged to download an app called Be my eyes, which connects blind and not blind people through video calls to help them with simple daily tasks and by doing that facilitates their lives. So the aim of the project would be to build empathy from students with the blind community by coming up with practical solutions that could make the blind people's lives easier.

PS 2.3

1:30 – 3:30

Location:

VARI 135

Language:

PORTUGUÊS

O papel do Diretor como fomentador do uso de metodologias ativas no âmbito das unidades educacionais do Senac São Paulo

Mario Augusto Costa Valle (SENAC, São Paulo, SP, Brasil)

O presente artigo se propõe a apresentar a experiência de um projeto criado e vivenciado por um grupo de seis Diretores de unidades educacionais do Senac São Paulo, e discutir esta prática a partir dos resultados alcançados, propondo reflexões sobre a importância do gestor na construção de uma escola inovadora e democrática. O objetivo do projeto foi promover o engajamento de oitenta por cento dos funcionários de suas unidades, administrativos e docentes, no Projeto PonteS, que tem o objetivo de promover conversas educacionais a partir de metodologias ativas e significativas, visando concretizar a proposta pedagógica institucional.

Projeto CRIAR promovendo ações no programa Casa da Física da Universidade Federal do Amazonas

Elio Molisani Ferreira Santos, Karla Susiane dos Santos Pereira (Universidade Federal do Amazonas, Manaus, AM, Brasil)

O projeto CRIAR, que dissemina metodologias ativas de ensino-aprendizagem, promove ações para a formação dos alunos de diversos cursos de licenciatura da UFAM, que atuam como monitores no programa de extensão Casa da Física (CDF). A CDF, que atende alunos do Ensino Básico de Manaus em aulas prioritariamente experimentais, está passando por uma reformulação incentivada pelos próprios monitores, para agregar, a partir de 2018, metodologias ativas baseadas em resoluções de problemas, desenvolvimento de projetos e aprendizagem criativa. Apresentaremos a estruturação desses cursos com a intenção de fomentar a discussão e de receber feedbacks que possam ajudar na melhoria do projeto.

Aprendizagem Baseada em Problemas e por Projetos: experiências na escola primária diante de questões contemporâneas

Ricardo Fernandes Pataro, Cristina Satiê de Oliveira Pátaro (Universidade Estadual do Paraná, Campo Mourão, PR, Brasil)

O trabalho apresenta experiências com a ABPP, Aprendizagem Baseada em Problemas e por Projetos, realizadas na escola básica brasileira. A ABPP é uma abordagem centrada no aluno que introduz na escola o estudo de problemas sociais atuais, vistos como possibilidades de educação moral através de um problema e aprendizagem baseada em projetos. As experiências escolhidas para apresentação no presente artigo centram-se em cinco anos de trabalho pedagógico realizado com estudantes de uma escola primária brasileira. O objetivo é destacar como essa metodologia ativa de aprendizagem permite o envolvimento ético, uma vez que a escola se conecta com temas socialmente relevantes. Os resultados mostram como o conhecimento disciplinar pode se relacionar a problemas do mundo real, a fim de educar personalidades morais que possam lidar com conflitos e desafios sociais.

Ativando o Núcleo Regional do Amazonas da Rede Brasileira de Aprendizagem Criativa

Elio Molisani Ferreira Santos, Karla Susiane dos Santos Pereira (Universidade Federal do Amazonas, Manaus, AM, Brasil), *Nivia Maria Cruz Carvalho* (Centro Educacional Século, Manaus, AM, Brasil), *Kamila Sarmento Brito* (Barco Hacker, AM, Brasil), *Marisa Almeida Cavalcante* (Universidade Federal do Amazonas, Manaus, AM, Brasil)

O Núcleo Regional do Amazonas da Rede Brasileira de Aprendizagem Criativa começou a ser implementado em 2017. Apresentaremos os desafios e as soluções encontradas ao longo desse processo. Apesar de problemas como a falta de computadores e até de energia elétrica em diversas comunidades do interior, que dificultam a expansão da Rede pelo estado, muitas ações educativas diferenciadas e valiosas que se encontravam isoladas podem agora se conectar através da Rede, ganhando visibilidade e força para beneficiar ainda mais pessoas da região.

LOUNGE

LG 3.1 4:00 – 6:00	Designing Groupwork meets Design Thinking	Location: LUCAS 126
<p><i>Rachel Lotan</i> (Professor Emerita, former Director, Stanford Teacher Education Program/STEP, Stanford University Graduate School of Education, USA)</p> <p><i>Shelley Goldman</i> (Professor, Director REDLab, Stanford University Graduate School of Education, USA)</p> <p>Moderator: <i>Reinhold Steinbeck</i> (Managing Director, IntoActions, USA)</p> <p>Design Thinking and Complex Instruction are pedagogical approaches in search of each other. Both have as their goal the development of problem-solving and critical thinking skills. Design thinking takes on problem solving with an eye to innovation and a commitment to empathy driven, human-centered approaches. Much classroom work with design thinking is focused on real world problem solving. Complex Instruction aims to equalize participation among members of small working groups by proposing how to craft groupworthy tasks, how to organize the classroom for productive interactions, and how to recognize and make public intellectual contributions by all members of the group. How might they combine in the classroom?</p>		

LG 3.2 4:00 – 6:00	Project-Based Learning, Design & Social Impact	Location: LUCAS 207
<p><i>Amy Smith</i> (Senior Lecturer in Mechanical Engineering and Founding Director, MIT D-Lab. 2004 MacArthur Fellow)</p> <p><i>Silvia Figueira</i> (Associate Professor, School of Engineering and Director, Frugal Innovation Hub, Santa Clara University, USA)</p> <p><i>Carlos Teixeira</i> (Associate Professor, Illinois Institute of Technology, Institute of Design, USA)</p> <p>Moderator: <i>Michelle J. Stecker</i> (Adjunct Assistant Professor and Director of Education and Action Research, Miller Center for Social Entrepreneurship, Santa Clara University, USA)</p> <p>How do you create multi-disciplinary project-based experiences that provide powerful enabling environments in which students learn to design products and services that will change the lives of the world's poorest citizens? Learn from some of the leading global educators who have been working at the intersection of learning, design, and social impact, offering courses and programs that emphasize experiential learning, collaboration, real-world projects, community-led development, and scalability.</p>		

AUTHENTIC PBL PROBLEM TRIGGER

PT 3.1 4:00 – 6:00	Problem Investigation in First Grade: Tackling Real World Issues to Make a Difference	Location: LUCAS 309
<p>Organizer: <i>Laura Nielsen, Bill Selak</i> (Hillbrook School, USA)</p> <p>We will share the 8-week Problem Investigation unit we did with first grade learners at Hillbrook School. We will describe the design thinking process that our students went through to identify issues in our community, research chosen topics, plan how to tackle issues, prototype solutions, test and revise a product and launch their ideas. We plan to demonstrate how we were able to have first grade students work collaboratively in problem investigation teams to address real world issues such as the decline of bee populations, the plight of sheltered animals, and the needs of the local homeless shelter populations.</p>		

WORKSHOP

WS 3.1 4:00 – 6:00	Developing Voice, Cross-Cultural Understanding, and Creative Communication through Transnational Youth Radio	Location: WEIGAND ROOM Language: ENGLISH
<p>Organizer: <i>Dana Walker, Deborah Romero</i> (University of Northern Colorado, USA)</p> <p>This workshop introduces participants to project based learning through transnational youth radio, and prepares participants to use radio storytelling and radio arts for teaching or community-based action at the local and global levels. The workshop begins with an overview of the current transnational youth radio research project that links Colorado and Catalunya. Participants then engage in hands-on activity involving collaborative multimedia radio production that combines research, analysis, interaction, imagination, and creative composition. Discussion will explore ways to apply the methodology and conceptual framework of transnational youth radio to a range of project based learning contexts.</p>		

WS 3.2 4:00 – 6:00	Arco de Magueres: Uma Ferramenta da Metodologia da Problematização	Location: VARI 133 Language: PORTUGUÊS
<p>Organizer: <i>Lara Mabelle Milfont Boeckmann, Ana Socorro de Moura, Maria Auren de Lavor Miranda</i> (School of Health Sciences, Federal District, Brazil), <i>Frederico Caetano de Moura</i> (Unified Educational Center of Brasília, Federal District, Brazil)</p> <p>O Arco de Magueres é uma ferramenta de ensino-aprendizagem na Metodologia da Problematização e vem sendo utilizado em algumas Instituições de Ensino Superior, haja vista experiência aplicada na cidade de Brasília no Brasil na Escola Superior de Ciências da Saúde nos cursos de Enfermagem e de Medicina. Neste contexto, o docente atua como um facilitador da aprendizagem, e o estudante é ativo e com propriedade desenvolve suas potencialidades e fortalezas para atuar na busca efetiva de resolução de problemas e situações de contextos reais. O Arco de Magueres é estruturado em cinco etapas: observação da realidade; identificação de pontos-chave do problema; teorização; formulação de hipóteses de solução para o problema em estudo; práticas de intervenção na realidade a fim de transformá-la. Objetivo: Aplicar o Arco de Magueres como ferramenta da Metodologia da Problematização em caso simulado. Estratégia: conduzir um workshop utilizando recursos audiovisuais e textos para discussão dialogada. Resultados esperados: Socializar a experiência com o uso da Metodologia da Problematização por meio da ferramenta do Arco de Magueres na construção do conhecimento em um contexto simulado, numa perspectiva integrada das diferentes etapas do arco de forma envolver os participantes ativamente em uma prática que possibilite a solução de problemas e transformação da situação apresentada por meio do desenvolvimento do raciocínio crítico e reflexivo para uma aprendizagem significativa.</p>		

PAPER SESSION 3

PS 3.1 4:00 – 6:00	Location: LUCAS 208	Language: ENGLISH
<p>Comparing how different inquiry-based approaches impact learning outcomes <i>Andrew Tawfik</i> (University of Memphis, Memphis, TN, USA), <i>Woei Hung</i> (University of North Dakota, Grand Forks, ND, USA), <i>Philippe J. Giabbanelli</i> (Northern Illinois University, DeKalb, IL, USA)</p> <p>There are currently many variations of inquiry-based learning, including problem-based learning (PBL), lecture prior to problem-solving, and case-based learning (CBL). However, each prescribes different levels of student-centeredness. This study looked at the effects of CBL, lecture prior to problem solving, and PBL on students conceptual knowledge, causal reasoning, and self-efficacy (N = 91). While no significant difference was found on self-efficacy, the results found that the PBL group significantly outperformed the CBL group on conceptual knowledge. In terms of causal reasoning, the PBL group outperformed the other conditions on overall number of concepts and correctly identified connections.</p>		
<p>Can Project Based Learning future-proof our students? Insights from quantitative research <i>Robyn Horsley</i> (St Philip's Christian College, Newcastle, Australia), <i>Glen O'Grady</i> (Australian National University, Canberra, Australia)</p> <p>The expectation of students today, for the future, is that they should be able to apply knowledge to real world situations. It has been argued that this capacity is underpinned by high levels of critical thinking, written and oral communication. There is a little empirical research as to how Project-Based Learning (PBL) can facilitate learning gains in these capacities in middle school settings within Australia and how these gains relate to academic grades. This research presents initial findings of a proposed longitudinal study that will follow participants undertaking elements of PBL from Year 8 through to the end of Year 12.</p>		
<p>English Learner Experience in Mainstream Problem-Based Learning Classrooms: A Mixed-Methods Study <i>Annie Camey Kuo</i> (Stanford University, Stanford, CA, USA)</p> <p>This mixed-methods study examined the experience of English learners (ELs) to problem-based learning in their mainstream math, science, and social studies high school classrooms. Using a combination of survey and focus group data of ELs with varying linguistic and academic backgrounds, the analysis focuses on socio-material practices and affective variables in PBL. Findings suggest that the examination of three areas when planning and implementing PBL with heterogeneous mainstream classrooms improves the PBL experience: having an awareness of the EL student experience; leveraging the rich linguistic and prior knowledge of ELs as a strength and resource; and differentiating supports for ELs.</p>		
<p>Synapse-Based Learning (SBL) - New Method of Training on Small Groups: a randomized controlled study <i>Arioaldo Alberto da Silva Junior, Rafael Alberto da Silva</i> (Synapse Consultancy - Active Learning Training, Belo Horizonte, MG, Brazil), <i>Cassio Ibiapina</i> (Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil), <i>Antonio Carlos de Castro Toledo Jr.</i> (Unifenas, Belo Horizonte, MG, Brazil), <i>Stefano Puntoni</i> (Erasmus University Rotterdam, Rotterdam, Netherlands)</p> <p>Synapse-Based Learning (SBL) is a new learning method developed for technical/continuing medical education. It's based on PBL principles but incorporates Cialdini's social proof principle and Rogers' diffusion of innovations theory. SBL is, therefore, a hybrid method that uses mini-lecture and problem-discussion in small groups, through seven steps: welcome, icebreaker, contextualization, problem-situation, problem-diagnosis, decision-making, and problem-solution. Two controlled randomized studies tested SBL technical education on sustainable agricultural practices among agricultural technicians and small coffee growers. In both studies, SBL was superior to traditional lectures and control group in learning, and in the second study SBL was superior for promoting deep-learning.</p>		

PS 3.2	Location:	Language:
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4:00 – 6:00	LUCAS 307	ENGLISH
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Perceptions and Attitudes towards Blended Learning for Civil Engineering Courses: A Case Study of Students at University of Ibagué

Jorge Montoya (University of Ibagué, Ibagué, Tolima, Colombia)

This paper presents a case study of students' perceptions and attitudes towards a Blended Learning course in Mechanics of Materials. It identifies the perceptions and attitudes that blended learning provides to students' learning experiences and investigates negative impressions in blended Mechanics of Materials courses from the learners' perception. In this approach, the professor videotaped part of the class and assigned them to students to watch and study independently. This study concludes that students have good perceptions and attitudes towards BL. They consider that class time is used in a more effective and efficient way, compared to traditional engineering courses approaches.

PBL and learning of social responsibility

Nicolaj Riise Clausen, Anette Kolmos, Jette Egelund Holgaard (Aalborg University, Aalborg, Denmark)

The main purpose of this article is to analyze if there is a connection between problem- and project-based learning and the students' development of social responsibility. This is analysed through a cohort study started in 2010 as the generation of engineering students enrolled. Aalborg University has the highest degree of PBL in their studies compared to other Danish universities and the analysis is based on a comparison between students from Aalborg and the remaining danish universities. The article draws forward a correlation between development of the students social responsibility, ethics and social awareness and their engagement at a PBL university.

POGIL and reflection: a perfect duo to increase students' performance in a General Chemistry course for Engineering careers

Alejandra Ratti Parandelli, Mauricio Power (Universidad de Ingeniería y Tecnología, Lima, Perú)

Teaching and learning in Engineering in the 21st century requires the utilization of active learning techniques. At UTEC, only 49% to 59% of the students passed the General Chemistry course offered for freshmen. Hence, the challenges were to increase the performance of students and find active methodologies to teach the course. The implementation of POGIL was shown to improve student performance from 54 to 85% approximately. Additionally, by using reflection, engineering students have the opportunity to recognize the need of lifelong learning and the importance of chemistry in their daily life regardless of career field.

Exploring the Limits of Authenticity in Entrepreneurial Engineering Education

Christopher Kitts, Anne Mahacek, Mike Rasay (Santa Clara University, Santa Clara, CA, USA)

Over the past two decades, many engineering education programs have sought to improve the educational authenticity of their programs through hands-on, team-based projects and real-world engineering experiences. The benefits of such initiatives notwithstanding, the experiences of such programs typically fall quite short of what engineers do in the "real world"—developing and producing engineered products/services that create quantifiable value for real customers as part of a competitive, sustained enterprise. In this paper, we describe our efforts to provide such unique experiences, pushing the limits of authenticity in engineering education and creating positive learning outcomes for our students.

PS 3.3 4:00 – 6:00	Location: VARI 135	Language: PORTUGUÊS
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Aplicação do arco de Maguerez na atenção à saúde da criança hospitalizada

Fabiana Claudia de Vasconcelos França, Manuela Costa Melo, Ana Gabriella Silva dos Santos, Anndreya Marques de Souza Rodrigues, Kananda Karla Andrade Freitas, Luana Nunes Lima, Pamela Uaqui Alvino dos Santos, Rodrigo Augusto Gonçalves Fonseca, Geisa Sant'Ana (Escola Superior de Ciências da Saúde, Brasília, DF, Brasil)

Introdução: Internação hospitalar é experiência angustiante ao indivíduo, e sentimentos podem estar potencializados ao tratar-se de criança. Objetivo: Aplicar Arco de Maguerez na atenção à saúde da criança. Método: com embasamento teórico nos pressupostos Metodologia da Problemática, utilizou-se de associação entre etapas do Arco de Maguerez, proposto por Neusi Berbel. Desenvolvida no hospital-ensino, Distrito Federal, Brasil. Ocorreu em março e abril de 2017. Participaram seis discentes. Resultado: Foram desenvolvidas as etapas do Arco de Maguerez: Observação da realidade; Pontos chave; Teorização; Hipóteses de solução; Aplicação à realidade. Considerações finais: Atividade demonstrou ser estratégica e buscou a visão crítica reflexiva do discente.

Um curso de Medicina no sertão do Rio Grande do Norte - uma evolução, uma revolução!

Gerson Barbosa do Nascimento, Jane Cristina Medeiros (Escola Multicampi de Ciências Médicas do Rio Grande do Norte, Caicó, RN, Brasil)

A instalação do curso de Medicina efetivou-se com o envolvimento de diversos segmentos. Foram realizadas reuniões e audiências públicas e acrescidas contribuições de setores: classe médica, sistema de saúde e comunidade. Buscou-se um curso voltado para as demandas de saúde da população; e a qualificação dos egressos para atuarem em todos os cenários. Ressalta-se a relevância social da criação desse curso no interior do Estado do Rio Grande do Norte, voltado para a superação das dificuldades existentes atualmente e para a formação de profissionais mais comprometidos. Merecem destaque aspectos inovadores, como a responsabilidade social e a adoção de metodologias ativas de ensino.

Espiral construtivista na pós-graduação: um relato de caso

Raquel Cesario, Ana Gabriela Rosa Andrade Asevedo, Andrea Cristina Junqueira Souza, Cibele Gomes dos Santos, Danilo Lanfredi, Débora Nassif Alves Rodrigues, Juliana Rissi da Silveira Calsani, Sandra Aparecida Ferreira Guerra, Wilson Cunha Júnior (Uni-FACEF, Franca, SP, Brasil)

O objetivo é relatar a experiência com o uso da espiral construtivista em uma disciplina de 30 horas presenciais, em um programa de mestrado com currículo tradicional. A apresentação caracterizará o processo de planejamento e execução da disciplina, abordando o seu impacto sobre estudantes e facilitadora e discutindo as vivências e resultados à luz dos referenciais teóricos disponíveis no campo da andragogia e da pedagogia problematizadora. A experiência de inserção da espiral construtivista na pós-graduação, e em uma disciplina de curta duração foi muito positiva, aprofundou a experiência da professora e deve ser replicada.

Trajetória de Estudantes Negros Após o Curso de Graduação na Universidade Federal Fluminense

Deise Guilhermina da Conceição (Universidade Federal Fluminense, Rio de Janeiro, RJ, Brasil)

O presente estudo tem como principal temática a análise do impacto dos cursos de graduação da Universidade Federal Fluminense sobre a mobilidade socioeconômica de estudantes negros. Sabemos que historicamente a população negra possui menos anos de escolaridade se comparada à população branca, e que o acesso à educação pode desdobrar-se em vantagens. O objetivo deste trabalho é, utilizando o banco de dados da Coseac/Uff, mapear os atores sociais envolvidos neste processo, isto é, os profissionais negros que ingressaram nos cursos de graduação da Uff no ano de 2004 e verificar o impacto dos cursos de graduação nas vidas dos sujeitos.

6:00 – 7:00

PAN-PBL ASSOCIATION GENERAL ASSEMBLY

Location: LUCAS 126

General Assembly of the PAN-PBL Association of Problem-Based Learning and Active Learning Methodologies. All PBL2018 Conference participants are invited to participate and discuss the future perspectives of the Association.

SUNDAY 2/18

KN 3 8:30 – 10:00 AM	Keynote Speaker <i>Amy Smith</i> Senior Lecturer in Mechanical Engineering and Founding Director of the MIT D-Lab	Location: Recital Hall Music & Dance Bldg. Santa Clara University
<p style="text-align: center;">Project Based Learning: Who's at the Helm?</p> <p>Whose problem is it? Who identifies the challenges and needs? Who shapes the projects we work on? Who's involved in the solution? Hands-on project-based learning can be a transformational experience for both students and the community partners if the projects are the "right ones" and the beneficiary is firmly at the helm. This talk will share D-Lab's philosophies of design and approaches to community-driven, project-based learning through case studies and hands-on activities. Examples of D-Lab's experiences in the classroom and in the field will illustrate how design and experiential learning can be used as an effective tool for community development, individual transformation and as a strategy for poverty alleviation.</p>		

10:00 – 10:20 AM

BREAK

VARI HALL LOBBY

LOUNGE

LG 4.1 10:30 – 12:30	Taking Design Thinking to School – The iLab at the San Francisco Unified School District	Location: LUCAS 126
<p><i>Shelley Goldman</i> (Professor, Director REDLab, Stanford University Graduate School of Education, USA) <i>Brian Fox</i> (Director, iLab, San Francisco Unified School District) Moderator: Reinhold Steinbeck (Managing Director, IntoActions, USA)</p> <p>The iLab was established by the San Francisco Unified School District to develop a district-wide innovative system. The iLab is a physical space, a process, and a curriculum that fosters innovation across the organization. It leverages human centered design as a signature practice. The iLab strives to inspire collective genius, develop an innovation culture, and empower all people in the district to effectively educate and support each and every child. This session will take up how the iLab implements the district vision, how design thinking is working as a process, and what lessons are being learned about how an innovation culture helps meet equity and achievement goals.</p>		

PBL STUDIO

ST 4.1 10:30 – 12:30	Introducing the Collaborative E-Learning Design Method	Location: LUCAS 309
<p>Organizers: <i>Thomas Ryberg, Ulla Konnerup</i> (Aalborg University, Aalborg, Denmark)</p> <p>In this interactive session we will introduce the Collaborative E-Learning Design method and participants will be given firsthand experience in working with the method. The method facilitates design of ICT-supported or networked learning activities. It divides the design process into three phases and uses specific tools and techniques in each phase. It draws on existing techniques which are often employed within iterative design processes such as card sorting and rapid prototyping; however, it entails some novel elements. Firstly, it seeks to address the gap between theoretical models of learning and actual learning designs. It does so by promoting negotiation and reflection among teachers by leading them to identify core pedagogical values, and focusing on embedding these in the actual design. Secondly, it specifically supports a collaborative approach to the design processes where teams of participants (ideally with different disciplinary backgrounds) co-develop learning designs. Thirdly, an accompanying web based software tool makes it easy to redesign the cards used as part of the method. This makes the method both scalable and applicable in different contexts.</p>		

WORKSHOP

WS 4.1 10:30 – 12:30	Transforming Online Learning into Active Learning – a design workshop*	Location: WEIGAND ROOM Language: ENGLISH
<p>Organizer: <i>Jim Vanides</i> (Montana State University & EdFutures.org, USA)</p> <p>Do you teach online and long for more learner "engagement"? Are you designing an online course and want to make it exciting and effective? Join us for a fast-paced 90-minute design experience based on the principles of design thinking, project/problem based instructional design, and active learning. Bring your existing course syllabus or course idea as we explore what it takes to transform online learning. This is a participatory workshop – so enrollment is limited to 20 attendees. Come for the fun – and leave with a fresh view of how to give students in your course an extraordinary experience.</p>		

* Each participant needs to come with an online course in mind, either one that exists and can be redesigned, or a course-idea

WS 4.2 10:30 – 12:30	Use PBL To Create A 100% Student Made Book of Bilingual Narratives	Location: VARI 133 Language: ENGLISH
Organizer: <i>Bayard Nielsen</i> (Notre Dame High School, San Jose, CA, USA) Use PBL to explore a social justice issue, bridge cultural divides, and create hard empathy by writing bilingual narratives based on community interviews. Create a structured collaborative space where students write individually and in groups, and offer peer feedback. Give immediate formative feedback to any student with organized sharing permissions for all documents. Finally, create a professional, 100% student-written and edited epublication with numerous leadership opportunities, especially for native speakers. Learn all steps and tools needed to start tomorrow. An award-winning bilingual example will be shared.		

PAPER SESSION 4

PS 4.1 10:30 – 12:30	Location: LUCAS 208	Language: ENGLISH
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Realistic simulated scenarios as a problematization strategy in women's health

Lara Mabelle Milfont Boeckmann, Ana Socorro de Moura, Maria Aurení de Lavor Miranda (School of Health Sciences, Federal District, Brazil), *Frederico Caetano de Moura* (Unified Educational Center of Brasília, Federal District, Brazil)

The aim of the present study was to share the experience of applying a realistic simulated scenario as part of the women's health module of the undergraduate nursing program of the School of Health Sciences, in April 2017, Federal District, Brazil. Eight students and two tutors participated in the study. The simulated problem scenario consisted of a consultation conducted with low-risk pregnant women in labor using an obstetric mannequin. The results showed that the students reached the objective and effectively solved the problem. Conclusion: The realistic simulated scenario provided a creative environment reproducing real-life experiences that fostered meaningful learning.

Use of 360 degree video in Bachelor Health Sciences program: Reality transfer into class

Nynke de Jong, Silke Metzelthin (Maastricht University, Maastricht, Netherlands)

Second year students in the Bachelor Health Sciences at Maastricht University may follow the specialisation on 'Policy, Management, and Evaluation of Care.' Practical experience is the spearhead of this specialisation. For students more insight into home care is desirable, as there is an increasing number of community-dwelling older adults. However, organizing field trips in home care is challenging to due large student numbers and the impact on clients private life. A 360-degree video was produced to bring 'home care' into class. The video is integrated in a Problem-Based Learning case. Outcomes of a study conducted in September 2017 will be presented.

Using Concept Mapping through problem-based learning to facilitate lifelong knowledge of risk factors for cardiovascular diseases: Case university of Algiers

Nasser Drareni (University Blida02 Elaffroun, Blida, Algeria)

In encouraging learners to assess their own knowledge, to recognize deficiencies, and to remedy those shortcomings through their own investigations many educational programs incorporate concept mapping through problem-based learning to promote learners' learning; however, PBL provides them with an explicit model for lifelong learning. Using concept mapping through PBL of risk factors for cardiovascular diseases, learners learn how to learn and how to ask the right questions to arrive at solutions. This study explored the use of concept mapping through PBL to assist the study, and sought to analyze whether this method could improve undergraduate learners' understanding of the risk factors of cardiovascular disease and their lifelong skills.

Intrinsic motivation of medical students from a medical school with active methodology in the Northeast of Brazil: cross-sectional study

Pedro Tadeu Álvares Costa Caminha de Azevedo, Ana Rodrigues Falbo, Gilliatt Hanois Falbo Neto (Faculdade Pernambucana de Saúde, Recife, PE, Brasil)

This paper reports on a cross-sectional study with 276 medical students to identify intrinsic motivation using the Intrinsic Motivation Inventory and analyzing associated factors within the tutorial group setting. Considering all the periods associated factors were age (less than 20-years-old) and not having parental influence or pressure when choosing the course. Associated factors for students in the 2nd term were financial dependance, not experiencing parental pressure to choose the course, and those on the 10th term had tried one college entrance exam.

PS 4.2 10:30 – 12:30	Location: LUCAS 307	Language: ENGLISH
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PBL Approach for Community Interpreters

Robyn Dean, Robert Q Pollard (Rochester Institute of Technology, USA)

Observation-Supervision is a PBL approach designed to improve interpreters' preparedness for work in settings like doctors' offices and courtrooms. Observation-Supervision sends interpreters into *in vivo* service settings to observe professionals and their clients. Instead of the typical vocabulary-centered training approach common in professional development, interpreters instead learn about broad, as well as nuanced elements and dynamics of the work setting itself. This latter component occurs during trainer-led supervision sessions that follow observations. This paper explores the unique designs of this PBL application for community interpreters in addition to the research findings from a government-funded project for mental health interpreter training.

The impacts of PBL on proficiency and social skills: Evidence from undergraduates in Economics in Brazil

Priscilla Tavares, Lilian Furquim (FGV/EESP, São Paulo, SP, Brazil)

In 2013, the São Paulo School of Economics (Brazil) implemented a hybrid model of PBL that combines problems and projects for Economics undergraduates. This process promotes significant changes in an organization's culture and impacts teachers, students, parents, staff, and the community as a whole. In this paper, we discuss the evaluation instruments and the observed results (qualitative and quantitative) on students' performance and soft skills as well as students' and teachers' perceptions of PBL's advantages and weaknesses. These results are closely linked to the specific PBL model adopted at EESP, which is also described.

Active Learning for Adults: Reporting an Experience in Marketing Course

Alexandre Borba Salvador, Ana Akemi Ikeda (University of São Paulo, São Paulo, SP, Brazil)

This article presents and discusses active learning methods and it reports the knowledge obtained in the application of a combination of active learning methods. The aim of this study is to broaden the understanding of active learning and, consequently, to provide teachers and researchers with useful information for the profession. This experience occurred in a marketing subject of an MBA course. The analysis was carried out in ten groups of an eight-class subject, involving problem based learning (PBL) sessions, a case discussion session, a group project, and an individual test application.

PS 4.3 10:30 – 12:30	Location: VARI 134	Language: ENGLISH
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Towards a flipped semester PBL approach: A cross-case analysis of flipped curriculum initiatives at Aalborg University

Lykke Brogaard Bertel (Aalborg University, Aalborg, Denmark)

This paper presents initial findings from the project 'Towards a flipped semester PBL approach' which is part of the larger 'PBL Future' research initiative. Aalborg University is working to develop next generation blended PBL learning models and principles. This subproject specifically explores possibilities and challenges related to the organization of and interplay between courses, self-directed study activities and supervised project work in flipped curriculum initiatives. Initial findings from a cross-case analysis of 8 initiatives will be presented with regard to teachers' goals, planning and preparation processes and challenges as well as students' experiences.

Bota pra fazer UNIFEI: Learning and Competing for Good Reasons

Fabio Roberto Fowler, Carolina Renó Ribeiro, Angelina de Lima Rosendo, Leticia Tenório Gonçalves, Juliana Caminha Noronha (Universidade Federal de Itajubá, Itajubá, MG, Brazil)

The constitutional amendment projects (PEC 678/16 and PEC 287/16) for the labor and social security reforms in Brazil certainly will affect educational institutions. Besides technical skills, graduates should also have managerial and so-called soft skills, which are characteristics usually found in successful entrepreneurs: group work, leadership, interpersonal relationships, creativity, flexibility, ethics, learning to learn, working under pressure, motivation, etc. This work aims to compare Project-Based Learning (PBL) and Entrepreneurship Education (EE), and their application in the Universidade Federal de Itajubá (UNIFEI). It is an annual entrepreneurship competition throughout social action projects involving more than 700 university students.

Student Purpose and its relation to Academic Performance and Career Decision Self-Efficacy

Ana Carolina Shinoda, Hamilton Luiz Correa, Flavio Hourneaux Júnior, Fernando Nascimento (University of São Paulo, São Paulo, SP, Brazil)

Paulo Freire defended the importance of consciousness through education. The conscience regarding one's Purpose may be very important for real student engagement in active learning methods. This study aimed at understanding the purpose development in Brazilian students and its relation to academic performance and self-efficacy in career decisions. A survey of 93 undergraduate students was conducted. It was found that only 25% of the students have identified a purpose and that this consciousness has a positive influence on their self-efficacy in career decisions. However, no relation was found between purpose and academic performance.

PS 4.4 10:30 – 12:30	Location: VARI 135	Language: PORTUGUÊS
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Jogo Sociológico: O Crime de Camurupá

Uipirangi Câmara (OPET - Faculdades e Centro Universitário, Curitiba, Brasil), *Paulo André Lau da Silva Câmara* (FGV, Curitiba, Brasil)

A partir da simulação de um cenário de crime numa comunidade imaginária repleta de estereótipos, diversos teóricos da Sociologia emprestarão seus nomes aos personagens e suas principais ideias tecerão as pistas necessárias, tanto para o desvendamento do crime, como para a compreensão de como se regula o campo jurídico. Essa escolha inovadora se justifica por aliar afetividade, cognição, desafios pessoais e colaboração, elementos tão importantes no processo de ensino e aprendizagem.

Ecoformação: a construção de estratégias de intervenção compartilhada no ambiente escolar

Rosana Gonçalves da Silva (Secretaria de Educação do Distrito Federal, Brasil)

O artigo apresenta elementos de uma Ecoformação-pesquisa desenvolvida em uma escola pública de ensino fundamental situada em Brasília, Distrito Federal, Brasil. O objetivo foi desenvolver um processo formativo interativo baseado na Linguagem Poética e na Ecologia Humana, no Pensamento Complexo e nos princípios da Carta da Terra, junto a professoras e estudantes dos anos iniciais. A experiência atravessou campos de conhecimento distintos, as expressões artísticas e os conhecimentos científicos e tradicionais. A partir do Método da Complexidade (MORIN, 1997), as estratégias interventivas envolveram metodologias multidimensionais e alguns princípios básicos propostos pela PBL, resultando na produção do conhecimento no cotidiano escolar.

Metodologia de Projetos no ensino de Psicologia Social

Haller Schunemann (Centro Universitário Adventista de São Paulo, São Paulo, Brasil)

A disciplina de Psicologia Social, no curso de Psicologia, tem como objetivo estudar as relações interpessoais, a partir das perspectivas de identidade, discriminação e solução de conflitos. Desta forma, consideramos uma disciplina adequada para conciliar os aspectos dos conteúdos com uma metodologia de ensino baseada em desenvolvimento de projetos em equipes. Os alunos foram organizados em equipes de trabalho. Ao longo do semestre, foram desenvolvidos dois projetos com os temas de Identidade - Discriminação e Solução de Conflitos. A estrutura do projeto foi organizada a partir de uma fundamentação teórica e a sugestão de propostas de intervenção.

Mais que uma metodologia, uma escola ativa – a experiência do SESI Paraná

Rosilei Ferrarini, Raquel de Oliveira e Silva do Nascimento, Lilian de Fátima Correa Luitz (SESI/PR - Serviço Social da Indústria, Curitiba, PR, Brasil)

A metodologia das Oficinas de Aprendizagem, adotada pelo Serviço Social da Indústria (Sesi), Paraná, Brasil é aplicada no ensino médio. Criada por Márcia C. Rigon, foi implantada na abertura dos dois primeiros colégios, no ano de 2005, e hoje está difundida em 53 Unidades, atendendo a cerca de 12.000 alunos. Mais que uma metodologia ativa de sala aula, demandou a reorganização do modo de funcionar da escola, assentada nos seguintes pilares: o aprender por desafios, a interdisciplinaridade e a transdisciplinaridade, um currículo por segmentos temáticos, grupos não seriados, o ensinar pela pesquisa e o trabalho em equipe pelos alunos.

12:30 – 1:30 PM

LUNCH

ON YOUR OWN

PANEL DISCUSSION

PD 5.1 1:30 – 3:30	PBL and Active Learning in Online and Blended Learning Environments	Location: LUCAS 126
<p><i>Tamara Carleton</i> (CEO, Innovation Leadership Board and Lecturer, Stanford Continuing Studies, Stanford University, USA) <i>Ulisses Araújo</i> (Professor, University of São Paulo, Brazil) <i>Jim Vanides</i> (Former Global Education Program Manager at HP and Online Instructor for hands-on inquiry-based physics education at Montana State University) Moderator: <i>Keith Yocam</i> (Lecturer, Department of Education and Online Education Manager, Markkula Center for Applied Ethics, Santa Clara University, Santa Clara, CA, USA)</p> <p>How do you design online and blended learning experiences that emphasize hands-on, collaborative, and applied project work? How do you align a flexible and collaborative learning platform with the power of coaching, peer evaluation, social input and mentorship for formal and informal feedback with? These are some of the questions that this panel will explore. Examples include Stanford University's flagship global innovation course offered through Stanford Continuing Studies, a hands-on inquiry-based physics course, and courses designed for the Virtual University of São Paulo.</p>		

PBL STUDIO

ST 5.1 1:30 – 3:30	Interactive Scaffolding of Threshold Concepts	Location: LUCAS 309
<p>Organizer: <i>Glen O'Grady</i> (Australian National University, Canberra, Australia)</p> <p>In this studio participants will undertake a series of activities supporting the design and implementation of "hard" and "soft" scaffolding to enhance students' understanding of threshold concepts. In Problem-based and Project-based learning the "problem" or "project" is the trigger for student learning. Scaffolds are then used to support student learning that is necessary to respond effectively to the trigger. Scaffolds are often needed to foster a "deep" understanding of key disciplinary concepts. Using a Knowledge/Experience Integration Learning Model it is possible to design "interactive activities" that support individual and group learning. In this Studio, we will work together to examine and understand Interactive Scaffolding.</p>		

AUTHENTIC PBL PROBLEM TRIGGER

PT 5.1 1:30 – 3:30	Interactive Discussion: Removing Barriers to Highly Effective PBL with Technology	Location: WEIGAND ROOM
<p>Organizer: <i>James Goodell, Denise Lawson, Bridget Thomas</i> (Quality Information Partners, USA)</p> <p>Participants will engage in an interactive discussion framed by a process model and conceptual design for a mobile app that incorporates competency-based education (CBE) and formative assessment processes into PBL implementation. Can technology lighten the burden for educators and bring a high level of fidelity to PBL implementation that might not otherwise be possible? Join us as we examine this question.</p>		

WORKSHOP

WS 5.1 1:30 – 3:30	Creating Student Change Agents through Personalized and Project Based Learning	Location: VARI 134 Language: ENGLISH
<p>Organizer: <i>Natalie Woods</i> (Education Elements, USA), <i>Rhonda Hill</i> (Buck Institute for Education, USA), <i>James Dallas</i> (Loudoun County Public Schools, USA)</p> <p>Schools and districts often feel the need to choose between implementing Project-Based Learning or Personalized Learning. During this interactive workshop, participants will explore how districts connect PBL and PL to empower teachers and students to make meaningful contributions to the world. Focused on the tangible and practical, participants will leave the workshop with a deeper understanding of the what and how of designing classroom and school experiences to promote authentic PBL and PL. This will include designing instructional models, ideas on how to integrate PBL and PL best practices, and tools to put into practice right away.</p>		
WS 5.2 1:30 – 3:30	Escape CLASSroom	Location: VARI 133 Language: ENGLISH
<p>Organizer: <i>Paula Carolei, Gabriel da Silva Bruno, Henrique Evangelista</i> (Universidade Federal de São Paulo, São Paulo, SP, Brasil)</p> <p>The workshop will have two moments: Experimentation and Adaptation. Experimentation: a 45-minute experience of an Escape Room game that takes place in a classroom scenario from which participants must escape by solving challenges designed from a framework of escapes and from research conducted with children and adolescents about what makes them flee from the classroom. All challenges follow a structuring narrative and require investigative skills in order to be solved. Adaptation: 45 minutes to discuss the experience and fill a framework proposing adaptations of the dynamics to its context.</p>		

PAPER SESSION 5

PS 5.1 1:30 – 3:30	Location: LUCAS 208	Language: ENGLISH
<p>Problem-Based Learning and Teacher Training: A Case Study of the Impact of PBL on Candidate Perceptions during their Field Experience</p> <p><i>Charles Wynn</i> (Kennesaw State University, Kennesaw, GA, USA)</p> <p>This paper presentation shares an empirically tested problem-based learning (PBL) model that includes a metacognitive phase that guides students to recognize and practice advanced cognitive skills, and reports results of a case study in which the researchers analyzed the impact of the PBL model introduced in a social studies methods course on the practices and perceptions of 12 preservice teachers (PSTs) during their field experience. Findings suggest that PBL, supported by modeling and metacognitive training, had a transformative impact on PSTs' relationships with their students, student outcomes, and their operational understanding of how to guide students to become effective decision-makers.</p>		
<p>The Effects of Subject Presentation Type on Student Motivation: A PBL Implementation in Speech-Language Pathology</p> <p><i>Elaine Pyle</i> (Minnesota State University Moorhead, Moorhead, MN, USA), <i>Woei Hung</i> (University of North Dakota, Grand Forks, ND, USA)</p> <p>Students have been observed as underprepared or skipping steps during the PBL process due to fatigue or low motivation (Czabanowska, et al., 2012). One way to explore this issue is to consider variables of the problem. This study considered presentation modality of the problem subject (i.e., key character involved in problem) on student motivation within the context of Speech and Voice Science. The results showed the frequency of engagement behaviors gradually declined. Although engagement levels declined and fatigue appeared to play a role, most students identified a combination of higher subject presence (i.e., audio-visual, face-to-face) and challenging content as motivating.</p>		
<p>A construction of worm compost turned in an Entrepreneurship experience</p> <p><i>Marcia Nobue Sacay, Ana Paula Lopes, Lucia Morais, Marcília Kawata, Rosália Motta, Sonia Reigado, Thaís Sarra</i> (Pioneiro Educational Center, São Paulo, SP, Brazil)</p> <p>Fourth grade' students were invited to develop a startup from the study of solid waste from organic materials. They tested conditions to figure out which treatment the decomposition process is more efficient and built a worm compost box in the classroom choosing only the best conditions. The major step began when they asked what it could be done with the products of the compost box. The questions were perfect to introduce entrepreneurship to them. They create a startup, with marketing, financial and innovative product departments that had the goal of building a prototype to market slurry and humus.</p>		
<p>Implementation perspectives of active methodologies at Colégio Marista João Paulo II</p> <p><i>Rodrigo Alves Xavier, Pedro Assumpção da Costa e Silva, Sabrina Crisóstomo Rocha, André Pessoa Fonseca, Gabriel Remington Souza Pereira, Jorge Monteiro dos Santos, Leonardo Henrique Santos Simões, Luiz Gustavo Mendes, Marcos Scussel</i> (Colégio Marista João Paulo II, Brasília, DF, Brasil)</p> <p>Marista Joao Paulo II school is implementing an active methodology-based teaching proposal. The school started the conceptual studies about those methodologies and further initiated the elaboration and implementation process, as a hybrid teaching approach. Here we address evidences difficulties, and possibilities of hybrid teaching from the educators' perspective. The data were collected via analytic grades and questionnaires for further qualitative interpretation. The research was designed as a case study. The results show the main constraints and benefits of the hybrid teaching implementation.</p>		

PS 5.2 1:30 – 3:30	Location: LUCAS 307	Language: ENGLISH
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The effect of managers in Educational Systems management: A study of supervisory action in public high schools in the state of São Paulo

Maria Camila Mourão Mendonça de Barros (Fundação Getúlio Vargas, SP, Brazil / Lemann Center at Stanford, USA)

This paper focuses on the implementation of Educational Policy and investigates monitoring as an internal management process of continuous control of inputs, processes, and outputs in order to identify strengths and weaknesses, formulate practical proposals, and take the necessary steps to reach the expected result. This approach is essential to link the drive-result system orientation with the school culture and the students' academic achievement. It is presented a qualitative study developed in six public schools at the State of São Paulo, selected by educational results from 2011 to 2016.

But does it work? Problem-based Learning (PBL) in an American Public High School

Paul Sutton, Randy Knuth (Pacific Lutheran University, Tacoma, WA, USA)

PBL has recently experienced a resurgence with school leaders who are experimenting with ways to increase student engagement and motivation through authentic problem-solving while also explicitly teaching the conceptual knowledge, understanding, and disciplinary practices promoted by the Math and English Language Arts Common Core State Standards (CCSS) and the Next Generation Science Standards (NGSS). This presentation shares how a public high school implemented PBL practices and pedagogies across core content courses in Math, Science, Social Studies, and English classrooms, and the corresponding impacts that had on student performance on multiple advanced placement (AP) courses.

A New Model of Problem-based Learning: Four Interrelated Illuminative Concepts for Fresh Ways of Thinking About and Doing PBL

Terry Barrett (University College Dublin, Dublin, Ireland)

The problem is conceptualised as a provoker of a liminal space between 1) current levels of knowing and new levels of knowing, 2) habitual forms of professional action and forms of professional action new to the learner and 3) satisfaction with current identities and a desire to explore other possible identities. PBL students move within and beyond the liminal spaces prompted by the problem in three interrelated ways. These are: using the PBL tutorial as a potential site for dialogic knowing, finding and being in flow in the PBL process, and experiencing learning as hard fun.

Concept Mapping in Geography Teaching: Fostering Active Learning

Leandro Campelo, Stela C. Bertholo Piconez, Paula Cristina Lameu, Édison Trombetta de Oliveira (University of São Paulo, São Paulo, SP, Brazil)

Concept mapping is a powerful tool to foster meaningful learning. Active learning combined with other strategies and technologies (e.g., CmapTools) can change the classroom and have a big impact on students. In this paper, the use of active learning with concept mapping combined with peer review allows students to be protagonists of their own learning. The results show that the students were more involved and that the classroom has changed completely, facilitating meaningful learning.

PS 5.3 1:30 – 3:30	Location: VARI 135	Language: ESPAÑOL
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Tranformar la cotidianidad escolar a partir de propuestas innovadoras de los estudiantes

Santiago Vasquez, Patricia Valenzuela (Colegio Los Nogales, Colombia)

Esta ponencia presenta proyectos soñados y desarrollados por estudiantes, con el acompañamiento de los profesores del Departamento de Español del Colegio Los Nogales, para transformar su cotidianidad escolar. El Plan Estratégico del colegio definió como objetivo el desarrollo a través del currículo debilidades del siglo XXI para aprender e innovar. Estos proyectos son el resultado de un proceso enfocado no sólo en desarrollar habilidades comunicativas sino también habilidades de creatividad, innovación y solución de problemas. Con esta experiencia de implementación de metodologías activas de aprendizaje, centradas en el estudiante, se compartirá a miembros de diferentes contextos, reflexiones, retos y logros.

Influencia de los estilos de enseñanza-aprendizaje de profesores y estudiantes universitarios en su habilidad para adquirir conocimientos

Michelle Muñoz-Carrasco (Universidad del Bio-Bio, Chile / Universidad de Concepción, Chile), *Pamela Jara-Zapata* (Universidad de Concepción, Chile), *Mariela Valdés-Soto, Patricia Arancibia-Avila* (Universidad del Bio-Bio, Chile)

Los cursos cuyos objetivos son eminentemente prácticos requieren de docentes con estilos de enseñanza que favorezcan los procedimientos y al parecer podría no estar vinculado al estilo de aprendizaje del estudiante. Un docente con estilo de enseñanza predominantemente funcional y otro con estilo mixto dirigieron dos grupos de estudiantes cuyos estilos de aprendizaje eran variados. Concluimos que el estilo de enseñanza funcional favorece la enseñanza de actividades prácticas junto con el rendimiento académico, más que el docente con estilo mixto, sin necesariamente coincidir con los estilos de aprendizaje de los estudiantes.

Influencia de la estrategia de construcción de mapas conceptuales en el rendimiento académico de estudiantes universitarios

Pamela Jara-Zapata (Universidad de Concepción, Chile), *Michelle Muñoz-Carrasco* (Universidad de Concepción, Chile / Universidad del Bio-Bio, Chile), *M. Dolores López* (Universidad de Concepción, Chile), *Patricia Arancibia-Avila* (Universidad del Bio-Bio, Chile)

Las estrategias didácticas centradas en el estudiante logran aprendizajes significativos. Nuestro estudio demuestra que los mapas conceptuales son una excelente estrategia educacional para mejorar los rendimientos académicos de estudiantes universitarios. La muestra de estudio consistió en 25 estudiantes que habiendo reprobado la asignatura de química general, se encuentran realizándola por segunda vez. Durante el progreso del curso se les instruyó para construir mapas conceptuales con los contenidos reprobados, para ser evaluados convencionalmente en forma posterior. Nuestros resultados demuestran que la aplicación de esta estrategia mejoró los rendimientos académicos de todos los estudiantes por sobre dos puntos la nota de aprobación.

Encuesta de satisfacción sobre la metodología PPL a estudiantes de Física III del I-Término 2017-2018

Florencio Pinela, Jorge Roblero Wong, José Sacarello, Daniela Guzmán (Escuela Superior Politécnica del Litoral, Guayaquil, Ecuador)

El propósito de este estudio fue conocer el grado de satisfacción que tienen los estudiantes en una clase activa. La encuesta fue anónima y se la realizó al final del semestre en todos los cursos de física III. del I-Término 2017-2018 sobre la importancia de cada una de las actividades que se realizan en la metodología PPL (project peer learning). Entre las actividades realizadas tenemos: Perusall (lectura previa al inicio de cada capítulo), Learning Catalytics realizado al inicio de cada capítulo, laboratorio, tutorial, problemas resueltos, resolución de problemas, resumen de capítulo y prueba de salida.

3:30 – 3:50 PM**BREAK****VARI HALL LOBBY****ROUNDTABLE**

RT 6.1 4:00 – 6:00	Roundtable session	Location: LUCAS 126
<p>PBL versus TBL: The relative merits of each <i>Mark Serva</i> (University of Delaware, EUA)</p> <p>Designing Problems for PBL <i>Woei Hung</i> (University of North Dakota, EUA)</p> <p>Las diversas formas de “ABP” y sus efectos en el aprendizaje? (En español) <i>Luis Bretel</i> (Consultant in Education, Perú)</p> <p>Staff Development in the Teaching of PBL <i>Anthony Leow</i> (Republic Polytechnic, Singapore)</p>		

LOUNGE

LG 6.1 4:00 – 6:00	Meet the Editors	Location: LUCAS 207
<p><i>Michael Grant</i> (Editor of the Interdisciplinary Journal of PBL - IJPBL)</p> <p><i>Thomas Ryberg</i> (Editor of Journal of Problem-Based Learning in Higher Education)</p> <p>Come and chat with Michael Grant and Thomas Ryberg, editors of two major journals specialized in Problem-Based Learning and Active Learning Methodologies, about publishing policies and opportunities.</p>		

AUTHENTIC PBL PROBLEM TRIGGER

PT 6.1 4:00 – 6:00	TERF: A 3D platform for an immersive learning experience*	Location: LUCAS 309
<p>Organizers: <i>Ulisses Araújo</i> (University of Sao Paulo, São Paulo, SP, Brazil), <i>Lucas Nobilo</i>, <i>Fabiana Marques Costa</i> (UNIVESP, São Paulo, SP, Brazil), <i>Ricardo Sudário</i>, <i>Marcos Soledade</i> (Quantica, Brazil), <i>Ron Teitelbaum</i> (3DICC, USA)</p> <p>Technology and Problem-Based Learning have a key role in the process of creating new ways for understanding education in the 21st Century. The initial goal is to present some emerging technologies (such as 3D platforms) entering the classroom, which are disrupting an educational model created 200 years ago. A second goal is to present some examples of professional development programs that articulate these emerging technologies with active learning methodologies, with Problem-Based Learning, Design Thinking, and the Maker Culture approach as the main tools to rethink time, space and relations in education.</p>		

* Each participant should come to the session with a computer notebook.

WORKSHOP

WS 6.1 4:00 – 6:00	Problem-Based Learning Online: A Happy Marriage?	Location: WEIGAND ROOM Language: ENGLISH
<p>Organizer: <i>Daniëlle Verstegen</i>, <i>Nynke de Jong</i>, <i>Diana Dolmans</i> (Maastricht University, Maastricht, Netherlands)</p> <p>Traditional forms of face-to-face Problem-Based Learning (PBL) work well in situations where students are on-campus and study full-time, but how do we cater for master-level or post-academic students who are working professionals and live far away? Many online courses fall back on teacher-led “old-fashioned” instructional designs. There are, however, successful examples of online PBL in adapted formats. Participants work on instructional designs for online PBL in their own setting and/or cases presented by facilitators. The facilitators will share their experiences with three examples: a small-scale synchronous PBL course, a middle-scale asynchronous course based on PBL principles, and a PBL MOOC.</p>		

WS 6.2 4:00 – 6:00	Open Data/Open Minds: Tell Local Stories Using with Maps, Paper Circuits and Illuminated Visualizations	Location: VARI 133 Language: ENGLISH
Organizer: <i>Elisabeth Sylvan, David Cole</i> (NEXMAP, San Francisco, CA, USA) In this hands-on workshop, participants will learn to support learners in their understanding of civic or environmental data overlaid on virtual maps, develop narratives about what they learn, and illuminate their learnings using paper circuitry. Participants will leave the workshop with the knowledge and tools to use the materials and approach in their own PBL practices.		

PAPER SESSION 6

PS 6.1 4:00 – 6:00	Location: LUCAS 208	Language: ENGLISH
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Mathematical Modeling and Environmental Education

Eliton Moura (University of Sao Paulo, São Paulo, SP, Brazil), *Deive Alves* (Federal University of Tocantins, TO, Brazil), *Alex Medeiros de Carvalho* (Federal Institute of Education, Science and Technology of the Triângulo Mineiro, MG, Brazil), *Arlindo Jose Souza Júnior* (Federal University of Uberlândia, MG, Brazil)

This article is a project developed at a federal school in Brazil. The objective was to encourage students who attended the 1st year of High School to interact with mathematics in the development of projects related to environmental education. The production of the data was based on four actions: problem formulation, the study of resolution, evaluation and creation of the prototype, built collectively. We seek to understand how the technology used in a toilet favors the saving of water in a residence. The work continued comparing a common model of Brazilian bathroom and a prototype built by the students.

Problem-based Learning in the Mathematics Classroom

Shelia McGee Ingram, Tommy Smith (Infinity Teaching and Learning, USA)

Despite the significant amount of research on problem-based learning (PBL), there is only a scarce amount of research on it in secondary education. The purpose of this study was to examine the perceptions of secondary school mathematics PBL facilitators on their facilitator training, classroom experiences, roles, skills, and implementation challenges. Survey data were collected. The findings revealed that a strong majority of participants indicated that their PBL training was effective at helping them understand the PBL philosophy, and the training provided them with sufficient insight into how to manage the small group learning process.

Building a photovoltaic charger at school

Eliton Moura (University of Sao Paulo, São Paulo, SP, Brazil), *Deive Alves* (Federal University of Tocantins, TO, Brazil), *Alex Medeiros de Carvalho* (Federal Institute of Education, Science and Technology of the Triângulo Mineiro, MG, Brazil), *Arlindo Jose Souza Júnior* (Federal University of Uberlândia, MG, Brazil)

This article describes a school project that aimed to encourage students to interact with mathematics in the development of projects related to environmental education. The data production was based on four actions collectively constructed: problem formulation, resolution study, evaluation and creation of the prototype. In this project, we studied a model/simulator of expenses in the recharge of a cell phone and the construction, by the students, of a charger with a solar panel, that could recharge without damage to the environment.

Teaching Zoology based on PBL Method

Vinina Silva Ferreira (Federal University of São Francisco Valley, Petrolina, PE, Brazil)

I utilized the PBL method to improve the teaching of Protostomes, included in the 2° year of an undergraduate course of Biological Sciences in the Federal University of São Francisco Valley, Pernambuco, Brazil. The subjects approached include the study of ecology, morphology, and phylogeny of invertebrate animals. During the second semester of 2017, students were encouraged to respond and elaborate problem situations involving the subjects of this discipline. After we worked using this new method, the students responded to a survey. They considered that PBL was better than traditional methods because it increased their learning and motivation in class.

PS 6.2 4:00 – 6:00	Location: LUCAS 307	Language: ENGLISH
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Rockville: Transforming Graduate Ethics Education through Game-Based Learning

Scot Headley, Danielle Bryant (George Fox University, Oregon, USA), *Charity-Mika Woodard* (Pittsburg State University, USA), *Sherri Sinicki* (George Fox University, Oregon, USA)

What resulted when a doctoral level course in ethics, equity, and justice was transformed from a lecture/discussion format to a game-based learning design? Relive the tale of Rockville, an American community beset by racial tensions and poverty while discovering how a group of educators, who were graduate students in this course, learned with their hearts, as well as their heads. The presentation provides the rationale, change process, course plan, experience and an assessment of the course.

Creativity, Flow and Mindfulness in Problem-based learning: Conceptual Understandings, Discourse Analysis Research and Practice Strategies

Terry Barrett (University College Dublin, Dublin, Ireland)

Developing the next generation of creative people is vital for achieving personal, work, and social justice goals. This paper begins by exploring insights gained from an understanding of the conceptual interrelationship between creativity, flow, and mindfulness. As student talk in tutorials is at the heart of the PBL process, we discuss what we can learn from a discourse analysis study of students' naturally occurring talk about the PBL process. These theoretical and research perspectives provide pointers to practical enhancers including designing problems with a high level of challenge. A number of these practical strategies are illustrated with examples.

Active learning methodologies and education for purpose

Valéria Amorim Arantes (University of São Paulo, São Paulo, SP, Brazil)

In this experience paper we present the results of a course being offered at the Graduate Program in Education of the University of Sao Paulo in the last two years, named "Purpose, citizenship and education". In this course we have been forming educational professionals from many areas of knowledge to develop purposeful programs based on Problem-Based Learning, Project-Based Learning, and Design Thinking, aiming to help individuals actively construct their life purposes. We will present the products designed by the course's students, including apps, websites, and community-focused programs.

Development of youth purposes in high school: an analysis of a proposal based on Problem and Project Based Learning (PPBL)

Viviane Pinheiro, Valéria Amorim Arantes (University of Sao Paulo, São Paulo, SP, Brazil)

This work aims to analyze a proposal based on Problem and Project Based Learning (PPBL) for the development of 92 high school student's sense of purpose in a Brazilian school in São Paulo. The analysis focused on the construction of prototypes in areas of professional activity that they wish to follow in the future, with a view to addressing social problems. As results, we verified the great participation of the students and recognition that the process was beneficial for their formation, providing reflections about the connections between professional career and ethical behavior in society.

PS 6.3 4:00 – 6:00	Location: VARI 135	Language: PORTUGUÊS
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O ser e o agir transformador - para mudar a conversa sobre educação

Lançamento internacional e debate do livro "O ser e o agir transformador - para mudar a conversa sobre educação", que reúne as experiências das primeiras 15 escolas reconhecidas pelo programa Escolas Transformadoras no Brasil, iniciativa da Ashoka, correalizada no Brasil pelo Alana. A publicação traz pesquisas, entrevistas e construção de conteúdos que retratam as experiências dessas escolas, que são contadas e recontadas para disseminar os motivos pelos quais elas são consideradas transformadoras e como trabalharam para se tornarem referências em educação em suas comunidades e no país.

Antonio Lovato (Ashoka, Brasil)

Manoel Andrade Neto (Universidade Federal do Ceará, Fortaleza, CE, Brasil)

Fernando Leão (Escola Vila Verde, Brasil)

6:00 – 8:00 PM POSTER SESSION AND POTLUCK CULTURAL GATHERING

Location: VARI HALL LOBBY

Poster Presentations: See the abstracts on Page 35.

For the Potluck Cultural Gathering, please bring any food, or drinks, that represent your country and culture. Also, if you play an instrument, sing, dance or want to present any other cultural aspect of a specific country and culture (e.g short movies, or slides) you are welcome to share with the other participants.

MONDAY 2/19

KN 4 8:30 – 10:00 AM	Keynote Speaker <i>Karen Cator</i> President and CEO of Digital Promise	Location: Recital Hall Music & Dance Bldg. Santa Clara University
<p style="text-align: center;">The Principles of Powerful Learning</p> <p>Powerful learners ask great questions, leverage technology, and connect and share with others who can support them or benefit from their learning. They identify their challenges, display ownership, build agency, gain knowledge, and develop college and workforce skills. They are empowered to take action – and then they assess, adjust and reflect along the way. In the end, they share their victories and lessons learned. The challenge-based learning (CBL) approach is all about powerful learning. It is grounded in what we know from the learning sciences and presents a framework that both develops skills that last a lifetime and drives learners to take action. In a time of uncertainty and change, people need the ability to approach problems with confidence and put their solutions to work. This session will explore the research, framework, and the five principles of Powerful Learning.</p>		

10:00 – 10:20 AM

BREAK

VARI HALL LOBBY

LOUNGE

LG 7.1 10:30 – 12:30	Dancing with Ambiguity: Collaboration versus Cooperation	Location: LUCAS 126
<p><i>Larry Leifer</i> (Professor, Mechanical Engineering, Director, Stanford Center for Design Research/CDR and HPI-Stanford Design Thinking Research Program)</p> <p>“Dancing with Ambiguity” is the fundamental nature of re-designing the future. It will arrive if we do nothing (maybe even designed by bad people). For some 35+ years, Professor Leifer, one of the founding members of the Stanford d.school, has been studying engineering design teams challenged to deliver break-through innovation for the future of sponsoring companies. His research has revealed that most corporate organizations are designed to assure cooperation, “do what is expected.” To deliver breakthrough, the unexpected, we demand extreme collaboration, “agreeing to disagree.” Have you challenged a speaker recently?</p>		

PBL STUDIO

ST 7.1 10:30 – 12:30	Harnessing Technology in Engaging 21st Century Learners in Active Learning*	Location: LUCAS 309
<p>Organizer: <i>Samson Tan</i> (Head of the Centre for Innovation in Learning at the National Institute of Education, Singapore)</p> <p>At this PBL Studio session, Dr. Tan will share a framework that supports educators in effectively adopting pedagogies in the curriculum for achieving the objective the 21st century competency outcomes. Inherently, this framework enables educators to harness the affordances of technology in designing courses that encapsulate six dimensions (Borderless, Anytime, anywhere, personalized, Co-learning, Seamless, and multimodal) of technology-enhanced learning experience. Dr. Tan will take the participants through several examples of how this framework is adapted in course development, followed by a hands-on session using this framework to adapt their course. The choice of educational technology is Google Classroom (and Google Apps).</p>		

*** Each participant should come with the following to the session: A computer notebook, a Google account, a course/lesson for the hands-on session, and a smartphone/tablet (optional)**

ST 7.2 10:30 – 12:30	Urban Tech Camp for Educators Matters	Location: WEIGAND ROOM
<p>Organizers: <i>Connie Davidson & Michael Slade</i> (California State University, CA, USA)</p> <p>Urban education is unique! Urban Tech Camp for Educators is a professional development model born out of the reality that urban educators are less likely to attend (due to lack of monetary support) quality technology conferences. In this presentation participants will be exposed to the Project-Based conference curriculum and the layered approach adopted to scaffold teacher knowledge integrating technology, content, and application. Participants will be given an overview of the curriculum, ask questions about the implementation, and view past projects. The session is a combination of presentation, conversation, and application.</p>		

WORKSHOP

WS 7.1 10:30 – 12:30	Design Thinking as an Active Learning Methodology: From Need Finding to Problem Finding	Location: VARI 134 Language: ENGLISH
<p>Organizer: <i>John Nash</i> (University of Kentucky, Lexington, KY, USA), <i>Dan Gilbert</i> (Gilbert + Chittenden, USA)</p> <p>“If I were given one hour to save the planet, I would spend 59 minutes defining the problem and one minute resolving it” (Albert Einstein). Strong empathy skills help educators gain deeper insight into framing meaningful learning opportunities for the “P” of PBL. Attending this session will help you define stronger, more relevant problems for you and your students to work on and lead other teachers through this process when you return home. Participants will leave this session with the skills to lead PBL activities that are innovative, impactful, and inspiring.</p>		

PAPER SESSION 7

PS 7.1 10:30 – 12:30	Location: LUCAS 207	Language: ENGLISH
<p>Knowledge in Action: Building a Professional Community for Project-Based Learning <i>AnnMarie Baines, Nathan Warner</i> (George Lucas Educational Foundation, USA)</p> <p>In this session, Lucas Education Research will present an overview of a project-based learning program that focuses on continuous improvement to encourage teacher agency over project-based curriculum. Through research-practice partnerships in five large, urban school districts, this approach builds a professional learning community to support teachers in customizing curriculum to place their students’ needs and voices at the center of the learning process. This presentation describes key takeaways about the professional development required to effectively enact project-based learning, highlighting the importance of building and maintaining strong partnerships with district leaders and teachers.</p>		
<p>Learning Mathematics Through A Community Based Experience <i>Kathleen Stoehr, Kathy Sun</i> (Santa Clara University, Santa Clara, CA, USA)</p> <p>This paper reports on how graduate students in an elementary teacher preparation program worked in small groups to deepen their knowledge about mathematics teaching, their elementary students, and the local community their school served. Working together, the students brainstormed ideas to design problem solving mathematics tasks that were explicitly related to their community investigation. Students presented their findings through a “Community Faire” and individually reported on what they learned about 1) their students, their students’ families, and their communities; 2) what they learned about themselves; and 3) the benefits and challenges of this type of mathematics teaching.</p>		
<p>The Social Innovators’ Framework: Developing Skills in Youth to Solve the World’s Most Complex Problems <i>Barbara Freeman</i> (University of California, Berkeley; World Bank, USA), <i>Robert Hawkins</i> (World Bank, USA)</p> <p>Global grand challenges (inequality, climate change) are accelerating in severity and complexity. Evoke is the World Bank’s award-winning game that uses storytelling, game mechanics and social networks to drive collaborative social innovation and empower young people to develop real-world solutions to problems in their local communities. The Social Innovators’ Framework, a project-based learning methodology grounded in the belief that all youth have the potential to be agents of change, is the cornerstone of Evoke. In this session, we discuss the skills framework, how skills are developed and operationalized in activities and measured, and the significant findings of an impact evaluation.</p>		

PS 7.2 10:30 – 12:30	Location: LUCAS 208	Language: ENGLISH
<p>SRL and PBL - How do students prepare? <i>Sanne Rovers, Anique de Bruin, Renée Stalmeijer</i> (Maastricht University, Maastricht, Netherlands)</p> <p>Self-regulated learning (SRL) is becoming increasingly important in modern education and can be especially daunting for students in a PBL curriculum. As students often use ineffective, surface-level strategies, it is important to understand what constitutes effective SRL in PBL, to be able to improve this skill in less apt students. Focus groups were organized with high self-regulating students in a medical PBL curriculum, asking them to explain how they prepare for tutorial group meetings and exams. Although a variety of strategies were reported, a common theme appeared to be a focus on a continuous self-monitoring and regulating of understanding.</p>		
<p>Exploring Active Learning Strategies for Procedural Knowledge Acquisition <i>Jonathan Puhl, Woei Hung</i> (University of North Dakota, Grand Forks, ND, USA), <i>Jirarat Sitthiworachart</i> (King Mongkut's Institute of Technology Ladkrabang, Thailand)</p> <p>Procedural knowledge, with its long history and research, has gone largely narrow in its breadth of analysis with its study samples, oftentimes focusing on the elementary and middle school levels. Utilizing new forms of technology, both in the aspect of active learning and assessment, procedural knowledge could be more useful than originally thought for higher education, in this instance undergraduate students. This pilot study aims to change this focus into a broader picture by considering the implementations, assessment styles, and overall impact of procedural knowledge within active learning for university students.</p>		
<p>Structured guidelines for bedside teaching grounded in the Cognitive Apprenticeship Model: supportive views of teachers and</p>		

learners

Hegla de Melo Prado (Instituto de Medicina Integral Professor Fernando Figueira, Recife, PE, Brasil), *Gilliatt Falbo* (Faculdade Pernambucana de Saúde, Recife, PE, Brasil)

Bedside teaching (BST) is considered one important activity in medical education, yet not much is known about effective structures to conduct it. The authors considered BST as an example of situated learning and designed guidelines based on the Cognitive Apprenticeship Model (CAM) to help clinical teachers to better provide learning at the bedside. Opinions of teachers, residents, and students on how well the structured guidelines fitted CAM, their effectiveness, appeal, and acceptability were investigated. According to them, guidance was well in line with CAM's guidelines for effectiveness, appeal and acceptability presented high ratings, some barriers were identified, and some improvements recommended.

Flipped Classroom in a European Public Health Program: Increase of knowledge acquisition

Nynke de Jong, Inge G. P. Duimel-Peeters (Maastricht University, Maastricht, Netherlands)

Maastricht University is known because of its Problem-Based Learning (PBL) 'seven-step approach'. In a 4-weeks module 'Ageing in Europe,' flipped classroom principles were implemented in order to improve the understanding of the topic 'diversity'. Following the expert in this field, students did not read and discuss the content properly. Do we blame the tutors of the tutorial groups? No, this content needs special expertise. Video clips, literature and an assignment were used to deliver content outside the classroom. In groups of 26 students, 3-5 fellow students collaborated in class and elaborated the content with the expert. Final grades showed improvements.

PS 7.3**10:30 – 12:30****Location:****LUCAS 307****Language:****ENGLISH****Deschool Education or Reinvent the School?**

Eduardo Chaves (University of Campinas, Campinas, SP, Brazil)

It is high time we recognize in practice what we already know in theory: education and schooling are not the same thing. Ivan Illich's Deschooling Society was written almost 50 years ago, at a time without Internet, microcomputers, mobile smartphones and social networks. And yet, we continue to spend billions of dollars offering more and more schooling and less and less education. Technologies available today allow us to bring personalized education to scale, offering every one the benefits of problem-oriented, project-based, active, interactive and collaborative education, focused on defining and implementing our life project, in environments that are not school-centered.

How can an existential-phenomenological *Bildung* perspective throw light on the potential and workings of Problem-Based Learning? The case of Danish psychology students and their embodiment of the habits of the profession

Casper Feilberg (Aalborg University, Aalborg, Denmark)

What is the purpose of higher learning and the ideals of the university? What traits characterize the habitus of the profession that the students enter after completing their studies? Including such *Bildung*-perspectives (Gadamer) and profession-perspectives (Bourdieu) makes it possible to arrive at a deeper understanding of the workings and potential of Problem-Based Learning, and of the demands that this educational philosophy places on the institution, supervisors, and students. Through case studies it is demonstrated that project work contributes to psychology students' embodiment of the habits of the profession by setting processes of formation free, creative mimesis (Kemp), and peer-support.

Struggling for Competency-Based Teaching and Learning in Political Science: Redesigning a Brazilian B.A. Program

Terrie Groth (University of Brasília, Brasília, DF, Brazil)

The B.A. in Political Science at the University of Brasília (UnB) is the first and (until very recently, the only) of its kind in Brazil, celebrating nearly thirty years. This paper briefly explores the historical evolution of this program in a country with a relatively small but active and assertive community of political scientists. The major focus is on the current internal political process of the Institute of Political Science as it struggles to review, redesign, and reintegrate the diverse aspects of its undergraduate program, moving away from course content to competencies.

PS 7.4**10:30 – 12:30****Location:****VARI 135****Language:****PORTUGUÊS****Experiências escolares revisitadas na formação de professores: as metodologias ativas aplicadas à educação básica**

Trajetórias escolares de alunos do Curso de Pedagogia da Universidade Federal do Tocantins (UFT), campus de Miracema, durante seu percurso escolar foram convertidas em objeto de estudo e reflexão crítico construtiva para a formação de professores. O instrumento de pesquisa selecionado foi um ensaio pautado no registro das memórias pessoais anteriores a seu acesso à universidade versando sobre experiências bem sucedidas durante a escolarização de cada um dos participantes. A metodologia adotada foi pautada na transposição didática adaptando conteúdos e programas da educação básica em práticas de ensino para a formação superior. O eixo das discussões foi pautado por uma visão sistêmica da aprendizagem das linguagens, códigos, matemática e suas tecnologias consideradas um desafio histórico da escolarização brasileira. O recorte assumiu como escopo relatos oriundos de distintas escolas em municípios localizados ao norte do país desde os primeiros anos da educação básica aos anos finais do ensino médio assumindo-se de forma mais delimitada a questão das especificidades regionais dos estados do Pará e do Tocantins; estas diretrizes constituem as referências de um diagnóstico preliminarmente elaborado adotado por pressuposto dos trabalhos posteriormente desenvolvidos. O tema "Dificuldades de Aprendizagem: desafios e perspectivas na atualidade" foi a tônica que orientou a proposta das experiências revisitadas à luz das metodologias ativas de aprendizagem. Compõem a equipe da proposição:

a orientadora do processo, uma coautora em metodologias, uma aluna em fase de conclusão do curso, dois alunos em estágio supervisionado em escolas básicas da região e quatro alunos pesquisadores.

Mila Cristie da Silva Tavares, Brigitte Ursula Stach-Haertel (Universidade Federal do Tocantins, Miracema do Tocantins, TO, Brasil)

Fabio Pereira de Oliveira, Kadja Luanna Pereira Fernandes, Brigitte Ursula Stach-Haertel (Universidade Federal do Tocantins, Miracema do Tocantins, TO, Brasil)

Andreson Patrício da Silva, Gustavo Barros Rodrigues, Brigitte Ursula Stach-Haertel (Universidade Federal do Tocantins, Miracema do Tocantins, TO, Brasil)

Gabriella Martins, Elane Nayra Barbosa, Brigitte Ursula Stach-Haertel (Universidade Federal do Tocantins, Miracema do Tocantins, TO, Brasil)

Kalina Ligia Almeida de Brito Andrade, Brigitte Ursula Stach-Haertel (Universidade Federal do Tocantins, Miracema do Tocantins, TO, Brasil)

12:30 – 1:30 PM

CLOSING CERIMONY

12:30 – 1:30	PBL and Active Learning Methods around the World: Trends and Perspectives	Location: LUCAS 126
<i>Participation of the PAN PBL International Board members</i>		

List and Abstracts of Posters

Location: VARI HALL LOBBY

PO01: Design Thinking: dificuldades de fazer sua implementação

Anna Cristina Barbosa Dias de Carvalho (Faculdade de Tecnologia de Itaquera, São Paulo, SP, Brasil), *Elaine Luiz* (ETEC Adhemar Batista Hemeritas, São Paulo, SP, Brasil), *Antonio Carlos Estender* (Universidade de Guarulhos, São Paulo, SP, Brasil), *Helio Hiroshi Imagawa* (ETEC Getulio Vargas, São Paulo, SP, Brasil)

O Design Thinking é uma metodologia ou um conceito que auxilia na criação de novas ideias. A necessidade de inovar é uma exigência de mercado e uma habilidade que não surge na academia com uma disciplina ou com palestras. Ela surge a partir do momento que o aluno consegue ter contato com a prática, quando ele tem a possibilidade de desenvolver produtos e discutir ideias a partir de problemas. O grande problema é como fazer isso se desenvolver diante de uma série de regras que existem nas grades curriculares. O objetivo desse trabalho é apresentar as dificuldades encontradas.

PO02: Design for the Community: Perspectives from students, instructors, and community partners

Lisa Martinez, Jessica Kuczenski (Santa Clara University, Santa Clara, CA, USA)

Santa Clara University has a commitment to educating competent, conscious, and compassionate students. Engineering education has a need for more real world, hands-on, and team-based problem solving. Our proposal aims to showcase a collaboration between an engineering course (Community-Based Design) and SCU's Food Justice Outreach Program, Bronco Urban Gardens, which has successfully incorporated student learning and social justice through project-based learning. Overall we will discuss three different perspectives of those involved with this collaboration, specifically detailing participation goals, success definitions, and challenges from each point of view. Some specific student-produced design solutions will be given as examples of this effort.

PO03: Diretrizes para a construção de módulos em um curso de Medicina

Jane Cristina Medeiros, Gerson Barbosa do Nascimento (Escola Multicampi de Ciências Médicas do Rio Grande do Norte, Caicó, RN, Brasil)

Para que ocorra uma estruturação adequada dos módulos, torna-se necessária a estruturação de uma metodologia de construção de módulos a ser seguida por todos os docentes. Na Escola Multicampi de Ciências Médicas do Rio Grande do Norte, construímos uma metodologia de elaboração de módulos composta das seguintes etapas: Organização temporal do módulo (calendário); Conhecimento prévio do conteúdo longitudinal do curso; Identificação dos temas a serem abordados nas grandes áreas; Determinação do eixo em que o tema será abordado (Habilidades, Comunidade e/ou Tutorial); estruturação escrita de um manual em duas versões (uma para os docentes e outra para os alunos).

PO04: Supporting Learner Transition from Small to Large Group Format Following a Problem Based Learning Methodology

Iris Mujica, Joanna Pierazzo (McMaster University, Ontario, Canada)

Problem-Based Learning (PBL) has been implemented in nursing education at McMaster University since the early 1970s. Throughout the years group sizes have been modified. This session will provide an overview of the principles and strategies supporting the transition from small group to large group format while still maintaining the essence of Problem-Based Learning in a theoretical undergraduate course. Participants will have the opportunity to experience how these strategies were implemented and will understand the difference between small group and large group in factors such as group facilitation, classroom management; flow of information, syntheses of ideas and student engagement in learning.

PO05: Using games in classes of medical school as a tool to effect and improving learning

Emiliano Esteves dos Santos, Igor M. Oliveira da Silva, José F. Neto, Mateus N. Carvalho, Raissa P. Nery, Leonam C. Oliveira (Instituto de Educação Superior do Vale do Parnaíba, Parnaíba, PI, Brazil)

Gamification as a teaching tool has contributed to the learning process, through interaction and perception directly to knowledge acquisition. The objective was to describe the application of electronic game in learning of radiological anatomy, using PowerPoint®, by comparing normal and anomalous radiological images of the Respiratory System. It was observed that the union between reading and simultaneous contemplation of radiography made the assimilation of knowledge efficient. Therefore, the use of gamification in process of learning radiographic anatomy can be an important tool for medical training, especially when it comes to improving skills and clinical reasoning.

PO06: Continuous Design at Santa Clara University: A Student-Run Microfinance as a "Living Campus Laboratory" for Sustainable Community Development

Long Le, Meg Rose, Melanie Vezjak (Santa Clara University, Santa Clara, CA, USA)

Believing in business as a noble vocation to serve the common good, a collaboration between a professor and students was formed in an international business course. Utilizing a project-based approach in microfinance, eco-friendly consumer products and ethically effective services were developed and socially marketed. Profits from such products and services have provided zero-interest loans for "others," both locally and internationally. Underlying this project-based microfinance has been the use of design thinking, where students through empathy and community-campus partnership can prototype and test better microfinance ideas to meet the identified needs for targeted communities. By designing a "living lab" for the purpose "to train the best for the world," students as "makers" and "doers" of zero-interest microfinance can engage to make business growth and innovation compatible with sustainable community development.

PO07: Learning in Unexpected Places: Delivering Miranda in Translation

Moire Corcoran, Jun Qiu, Caitlin Gardner, Ignacio Martinez, Faris Zahrah, Tiffini Tobiasson (Illinois Institute of Technology, Chicago, IL, USA)

In the fifty years since the Miranda warning has been implemented in the U.S., we've made strides in adult learning and comprehension yet Miranda delivery remains the same. While our initial design brief focused on delivering Miranda rights to Low English Proficiency individuals, our prototypes launched a discussion of designing tools for Miranda delivery and comprehension in a tense and negative learning environment. From visual cueing cards to an interactive app, our interdisciplinary team of students brought education, law, and design together to innovate in an unexpected learning environment. Prototypes available in English and Spanish.

PO08: Máquinas simples em um Parque de Diversões

Marcia Nobue Sacay, Lucia Morais, Marcília Kawata, Meire de Fátima Pereira, Rosália Motta, Sonia Reigado (Pioneiro Educational Center, São Paulo, SP, Brazil)

Muitos conceitos de ciências, como máquinas simples, tratados no 4o ano do EF-1, serão retomados somente no ensino médio, o que motivou os trabalhos de construção dos brinquedos de um Parque de Diversões para aprofundar de forma lúdica, divertida e criativa os conceitos presentes em nosso dia-a-dia, como as roldanas, alavancas, plano inclinado, roda e eixo. O livro didático apresenta o assunto em apenas 4 páginas, mas vislumbramos a possibilidade de desafiar professores e alunos a vivenciar a Ciência de forma experimental e prática, rompendo com um ritmo e sistema que preza pouco a aprendizagem mão na massa e criativa.

PO09: Implementação de metodologias ativas na educação profissional em saúde: relato de experiência sob a visão da andragogia

Fabiana Claudia de Vasconcelos França, Sandra Monteiro, Léia Melo, Zelinda Torri, Tiago Vaz (Secretaria de Estado de Saúde do Distrito Federal, Brasília, DF, Brasil)

Introdução: As metodologias ativas vêm sendo implementadas em vários segmentos da educação, promovendo transformações significativas no papel do facilitador e do aprendiz. A Andragogia traz base teórica para compreender o comportamento do adulto na aprendizagem. Objetivo: Apresentar a experiência de implementação de metodologias ativas na educação profissional do serviço de atendimento móvel de urgência do Distrito Federal. Método: por meio da educação permanente, utilizamos o brainstorming, aprendizagem baseada em problemas, dramatização, problematização, vídeos e aula expositiva problematizadora. Resultados: As metodologias ativas proporcionaram aos facilitadores uma visão ampliada e inovadora do ensino e a transformação da realidade na educação profissional.

PO10: Project-Based Learning in a Brazilian graduate program of Psychology

Douglas Pereira, Caroline Pereira, Ulisses Araújo (Universidade de São Paulo, São Paulo, SP, Brasil)

This study presents the results of an assessment of students that studied in a graduate program of Psychology that adopted a Project-Based Learning (PBL) methodology. The data came from an evaluation of 682 students, with different ages and time of professional experience, from 22 classes, in 16 Brazilian states. The initial results indicate a great satisfaction about the use of the methodology with positive feedback about the contribution for better understanding of the content and professional gain, and excellent feedback about the subject. PBL may provide for students a greater engagement and understanding throughout their professional development.

PO11: Uso de Mapas Conceptuales como herramienta de gestión en equipos estratégicos

Valeria Quintero (Hospital Universitario Montevideo, Uruguay), *Ana Díaz* (Hospital de Clínicas, Montevideo, Uruguay)

Experiencia en uso de Mapas Conceptuales para identificar percepciones de gestión de cambio de una Organización de Enfermería. El proyecto reunió a 42 enfermeras estratégicas de un Hospital Universitario. Metodología cualitativa, técnica análisis de contenido. Se utiliza CMapTools para procesamiento de mapas y elaboración de categorías. Se trabajó en equipos que elaboraron 5 mapas de forma colaborativa. Las categorías halladas son Organización, Persona, y Métodos. Persona es la categoría que reúne más expresiones de miedo, ansiedad, incertidumbre sobre esperanza y entusiasmo. La fortaleza está en la profundidad conceptual sobre Métodos y estrategias. La percepción sobre la Organización es de amenaza.

PO12: Discussion on Methodology to Go up and down Learning Stepladder Properly: From a Comparative Study of Supervision in PBL and Relationship Building in Service-Learning

Hironori Yamaguchi (Risumeikan University, Kyoto, Japan), *Mogens Jensen, Casper Feilberg* (Aalborg University, Aalborg, Denmark)

This study is a comparative study between Japan and Denmark on designing an active learning environment. This study focuses on the methodology of teaching humility and compassion to students as reflective learners. We found a deep connection with Project-Oriented Problem-Based Learning (POPBL) that emphasizes identity-constituting aspects to advanced Service-Learning, considered a methodology for cultivating citizenship. In comparison, we applied the "stepladder" (the top step is analysis) model which is simplified by the second author from "the decision ladder template" of Rasmussen (1976).

PO13: Projeto de vida no ensino superior: uma proposta de intervenção no bairro Brasilândia

Daniela Haertel, Ulisses Ferreira Araújo (Universidade de São Paulo, São Paulo, SP, Brasil)

A intenção deste estudo foi compreender a importância do engajamento social no ensino superior para auxiliar na visualização de projetos de vida. Para atender este objetivo, observamos a atuação de 8 alunos do curso durante uma proposta de intervenção no bairro Brasilândia e entrevistamos estes alunos. O resultado mostrou primeiramente que os estudantes consideraram que a experiência de imersão no bairro Brasilândia os levou a ter uma nova compreensão sobre a atuação do profissional de arquitetura na sociedade. Apenas alguns jovens se referiram a projetos de vida, embora todos eles tivessem considerado alguns objetivos de vida relacionados a profissão arquitetura.

PO14: Promoting reflections regarding Purpose in Life with Design Thinking

Ana Carolina Messias Shinoda, Ulisses Araújo (Universidade de São Paulo, São Paulo, SP, Brasil)

At USP Leste there is a discipline called "Problem Solving". In one of the classes of 2017 the chosen theme to develop the activities was "Purpose". The problem and project-based learning approach (PPBL) was employed through the use of Design Thinking (DT), in such a way that each group worked in the solution of a real problem in life (focusing in elderly, young pregnant girls and students from high school). It was possible to realize that the method supported the students to reflect upon their own Purposes in Life.

PO15: Aprendizagem Baseada em Problemas no Ensino Fundamental II: reflexões sob uma perspectiva geocientífica

Gabriela Finco-Maidame, Maria José de Mesquita (Universidade Estadual de Campinas, Campinas, SP, Brasil)

O trabalho parte de uma experiência adaptada e fundamentada na metodologia da Aprendizagem Baseada em Problemas, com enfoque geocientífico, para uma turma do nono ano do Ensino Fundamental de uma escola pública de Campinas, São Paulo, Brasil. Analisa e discute, principalmente, habilidades relacionadas a atividades em equipes, baseadas nas produções da intervenção. Os resultados preliminares apontam sinais de êxito do uso da ABP, mas diagnostica algumas limitações decorrentes de habilidades cognitivas e infraestrutura escolar. Contudo, os apontamentos indicam que a ABP, no Ensino Básico, fornece subsídios para motivar os docentes a novas experiências com metodologias de aprendizagem ativas.

PO16: Innovation and Design-thinking High School Classes - A Creative Revolution

Kristie Letter, John Douthit, Izzy Hettmansperger, Christina Perez, Naomi Burns, Robert Letter (Peak to Peak High School, Lafayette, CO, USA)

This poster session applies the structures of Design Theory to a project-based learning high school Innovation class. Students and teachers will highlight the project-based structures of empathy, ideation, prototyping, testing, and presentation as the successful structure in this class. This award-winning class has revolutionized the cafeteria, designed a future innovation hub, invented products, and changed several systems at their high school, all by utilizing student choice and the best practices of design. These techniques will benefit any project-based learning classroom, and the students can speak to their perspectives and process.

PO17: Metodologias ativas de aprendizagem para o Ensino Superior

Fabiana Marques Costa, Ana Cláudia Loureiro (Universidade Virtual do Estado de São Paulo, São Paulo, SP, Brasil)

A pesquisa teve como objetivo, sistematizar metodologias ativas de aprendizagem para auxiliar no desenvolvimento de Projetos Integradores (PI) dos alunos dos cursos de Engenharia e Licenciatura da UNIVESP, para solucionar problemas reais e complexos da sociedade. Entre 2014 e 2017, foi realizado um estudo que resultou em uma base de conhecimento com 30 metodologias como: Flipped Classroom, Mentoria, Tech Back, Storytelling, entre outros. Estas foram compartilhadas gradativamente com mediadores e alunos, auxiliando mais de 600 projetos. À medida em que mediadores apropriaram-se desse conhecimento e orientaram os alunos, a qualidade das soluções apresentadas nos PIs tornaram-se mais criativas e inovadoras.

PO18: "Why do we have feelings?": possibilities of a project-based learning practice to awareness of feelings and emotions

Cristina Satiê de Oliveira Pátaro, Ricardo Fernandes Pátaro (State University of Parana, Campo Mourão, PR, Brasil)

This poster presents the contributions of a pedagogical practice aimed to promote awareness of feelings and emotions. It analyzed the development of a project-based learning practice, approaching curricular contents to the interests and needs of students, as well as issues of social relevance focused on ethical formation. The project was conducted with an elementary school class, based on the theme "Feelings and Freedom of Expression" and targeting activities for recognition and expression of feelings and emotions. The activities exemplify possibilities with affectivity in school, bringing considerations that may provide the basis for new discussions and practices in education.

PO19: Apps for Experiential Learning

Josh Weiss, Shawn Kim (Stanford Graduate School of Education, Stanford, CA, USA)

Shawn Kim and Josh Weiss of Stanford Graduate School of Education developed a series of experience-driven online learning modules that work in conjunction with in-class materials. Each module complemented a distinct audience: a seminar course for Policy and Organizational Leadership Studies program, an executive education initiative, and a professional development workshop on process improvement. This project is ongoing as best practices are further documented, UI/UX is iterated, and blended learning workflow is refined.

PO20: Attention! Structure and content: two prototypes for teaching Physiology at UFPR

Anita Nishiyama, Thais R. Guastale, Bruno H. Meyer, Maria Victória F. Barbosa, Pedro D. Gomes, Helena Zanella, Mariana Carmin, Ana Paula G. F. Santos (Universidade Federal do Paraná, Curitiba, PR, Brasil)

The objective of this work was to produce instructional materials for Physiology classes based on ethical principles of the 3 R's from Russell & Burch (1959): Reduction, Replacement, and Refinement. The ideation process of Design Thinking resulted in 2 prototypes related to the theme "Attention:" the Portuguese version of the Stroop Test (<http://pet.inf.ufpr.br/stroop/>) and an E-book (<https://dl.orangedox.com/Ebook>). The didactic material generated made it possible to teach attention-related content in physiology classes without the use of lab animals which is more in line with the ethical climate of today's student body.

PO21: e-du.c@c@o F1.51.C4: o início do processo de consolidação do projeto-piloto

Rodrigo Fukugauti (EE Comendador Emílio Romi, Santa Bárbara d'Oeste, SP, Brasil)

O objetivo deste trabalho é analisar o processo de implementação do projeto-piloto “e-du.c@c@o F1.51.C4: uma experiência a partir do Ensino Híbrido”, comparando os resultados obtidos nos anos de 2016 e 2017. Para cumprir esta tarefa, foram realizadas uma pesquisa bibliográfica, uma pesquisa documental e uma pesquisa de campo. De maneira geral, no ano de 2016, foram constatados resultados negativos e, no ano de 2017, foram constatados resultados positivos. Toda mudança gera estranhamento. Entretanto, o fato é que a resistência dos alunos está sendo vencida. O processo de consolidação parece ter se iniciado e está em curso atualmente.

PO22: Escola sem muros, uma educação inovadora sustentada pela cultura da paz

Valquiria Madureira Viscaino (Secretaria Municipal de Educação de São Paulo, São Paulo, SP, Brasil)

Tirar os muros da escola é ir além das construções arquitetônicas. A região de Heliópolis, localizada em São Paulo, Brasil, era uma região violenta. Após a morte de uma estudante da Escola Municipal Presidente Campos Salles, o diretor Braz Rodrigues Nogueira, em parceria com a UNAS (União de Núcleos, Associações dos Moradores de Heliópolis e Região), criaram a Cultura da Paz. A Escola da Ponte de Portugal (Pacheco, 1976) foi inspiração para a inovação. Fundamentada nos princípios da Autonomia, Responsabilidade e Solidariedade, os agentes educacionais criam metodologias ativas proporcionando o protagonismo dos estudantes e de toda a comunidade de Heliópolis.

PO23: Metodologias da problematização na prática pedagógica em preceptoría

Ana Socorro Moura, Lara Mabelle Milfont Boeckmann, Maria Aurení de Lavour Miranda, Frederico Caetano de Moura (Escola Superior de Ciências da Saúde, Brasília, DF, Brasil)

Introdução: O preceptor de ensino atua no Curso de Graduação em Enfermagem na Escola Superior de Ciências da Saúde (ESCS), Distrito Federal, Brasil, integrando ensino-serviço-comunidade. Problematização propicia reflexão da prática do trabalho, com sucessivas aproximações aos objetos de aprendizagem e construção coletiva do conhecimento. Objetivo: Relatar a experiência da capacitação do preceptor de ensino em Metodologia da Problematização. Método: Relato de experiência do curso na ESCS, em 2017, com 40 horas, 30 participantes. Abordado: Arco de Maguerez na Metodologia da Problematização. Resultados: Apropriação do conteúdo teórico-prático e das habilidades requeridas para preceptoría. Conclusão: Ampliação do olhar crítico-reflexivo no processo ensino-aprendizagem.

PO24: Problem-based learning methodologies in a postgraduate course in organizational psychology: a case study in a project management discipline

Fábia Maria Silva Lins dos Santos (SENAC, Brasil)

In this case study, the author describes how she used problem-based learning methodologies in a project management discipline in a postgraduate course in organizational psychology. Integration of knowledge and practice, collaboration and group work allowed students to apply concepts in their projects and feel stimulated. At the end, students answered a questionnaire that had the aim of knowing if the classes had motivated them. Twenty-one out of 25 students answered "yes." Most of the students achieved good grades in their final project presentations. This result could not have happened if all the theoretical content were presented at once.

PO25: Projeto de Inovação na Licenciatura em Química do IFSP Câmpus Capivari

Paloma Epprecht e Machado de Campos Chaves (Instituto Federal de Educação, Ciência e Tecnologia de São Paulo, Capivari, SP, Brasil / Universidade de São Paulo, São Paulo, SP, Brasil), *Carlos Fernandes Barbosa da Silva, João Batista de Medeiros, Thalita Arthur* (Instituto Federal de Educação, Ciência e Tecnologia de São Paulo, Capivari, SP, Brasil)

O Curso de Licenciatura em Química do IFSP Câmpus Capivari iniciou um projeto de inovação pedagógica envolvendo flexibilização do currículo, mudança disruptiva da metodologia e da avaliação e ressignificação do papel de professores e estudantes no processo de aprendizagem. São objetivos do projeto promover o protagonismo e a autonomia do estudante e alcançar a personalização da educação, sem perder sua dimensão coletiva. Além de construir uma referência pedagógica, pretende-se mapear caminhos possíveis de inovação em educação, de modo a servir de inspiração e referência para outras instituições que queiram inovar. O presente trabalho apresenta resultados parciais do projeto.

PO26: Proposta de metodologia ativa na Pós-Graduação - blended learning e a sala de aula invertida: a experiência do Mestrado Acadêmico da Escola Superior de Ciências da Saúde

Geisa Sant Ana, Fábio Ferreira Amorim, Bárbara de Caldas Melo (Escola Superior de Ciências da Saúde, Brasília, DF, Brasil)

Introdução: A sala de aula invertida ou Flipped Classroom é uma ferramenta que tem suas raízes no ensino híbrido. Objetivo: relatar de forma crítica-reflexiva a implementação da ferramenta educacional denominada “Sala de aula invertida” em uma disciplina de pós-graduação. Método: buscou-se principalmente trabalhar com conteúdos considerando os precursores da pedagogia até a atualidade. Divididas por temas, disponibilizados filmes e vídeos com objetivos pedagógicos, associado a referência bibliográfica que direcionava o aprendizado do estudante sobre o tema proposto. Resultados: Ao invertamos a lógica da sala de aula, oferecemos oportunidades para praticar habilidades de comunicação e trabalho em equipe.

PO27: Gamification used as an active learning strategy with elementary and secondary school students in a neglected area of Piauí – Brazil

Rebeca Coêlho Linhares, Ana Rachel Oliveira de Andrade, Cássy Geovanna Ferreira Moura, Igor Matheus Oliveira da Silva, Juliana Fernandes Moreira, Laís Mesquita Mororó Aragão, Luana Cristina Farias Castro, Maria Carolina Oliveira Azevedo, Paula Sabrina Martins Barros, Yuri Dias Macedo Campelo, Vanessa Meneses de Brito Campelo (Instituto de Educação Superior do Vale do Parnaíba, Parnaíba, PI, Brazil)

In response to the rapid evolution of health education, medical schools are incorporating an active learning method where the student needs to act proactively in order to achieve learning outcomes. Gamification is an engaging methodology that represents an active learning method. Through this approach, students learn how to solve healthcare-related subjects based on what they have seen. Over the last few years, gamification has drawn the attention of professors and academics, focused on the qualification of knowledge. There is an increase in interactivity level, which is responsible for the enhancement of the learning process.

PO28: Aprendizaje Activo apoyado en tecnología y desarrollo de proyectos

Jorge Roblero Wong, Florencio Pinela, José Sacarelo, Luis del Pozo, Daniela Guzman (Escuela Superior Politécnica del Litoral, Guayaquil, Ecuador)

El propósito de este póster fue presentar el diseño instruccional que usamos en la ESPOL y que ha permitido incrementar muchas habilidades de los estudiantes en áreas como lectura, pensamiento crítico, pensamiento complejo, argumentación, liderazgo y expresión oral. En los proyectos y exposición de problemas nos dimos cuenta que estaban desarrollando cambios en su personalidad, en la forma de comunicarse y expresarse demostrando sus valores adquiridos. Nuestro diseño fue desarrollado en un ambiente de aprendizaje activo, desde la posición de las sillas hasta la selección de los grupos de trabajo mediante un software especializado.

PO29: Conceptualización de campos magnéticos permanentes usando el material educativo

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El propósito de este estudio fue desarrollar en los estudiantes la habilidad de conceptualización usando el aprendizaje colaborativo en la unidad de campo magnético con la ayuda de material educativo computarizado, usando investigación basada en diseño, con dos intervenciones, la primera prueba para mejorar el diseño y la segunda para realizar la investigación. El sistema que usamos fue la combinación del aprendizaje social de Vigotsky y el constructivismo de Piaget. Los resultados obtenidos demostraron que, usando material educativo con multimedia ayuda a los estudiantes a mejorar su rendimiento.

PO30: Incidencia de la lectura previa utilizando la herramienta de lectura perusal en la instrucción en pares

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El propósito de este estudio fue evaluar y analizar la incidencia de la lectura comprensiva, reflexiva, y el pensamiento crítico en la comprensión de problemas conceptuales. La metodología del diseño instruccional de aprendizaje colaborativo con la ayuda de las herramientas de lectura previa (Perusal) y de aprendizaje interactivo LC (learning catalytics). La lectura comprensiva, reflexiva y la socialización en clase permitieron desarrollar algunas habilidades blandas. Los estudiantes usaron “Peer instruction” de Erick Mazur y los resultados obtenidos muestran que los estudiantes que tienen una lectura comprensiva y reflexiva junto con el razonamiento crítico aumentan significativamente su rendimiento académico.

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